ENVIRONMENTAL ASSESSMENT

PRE-DECISIONAL

**SHOOTING WHITE-TAILED DEER
TO ASSIST THE CITY OF PHILADELPHIA,
FAIRMOUNT PARK COMMISSION IN ACHIEVING
DEER POPULATION REDUCTIONS
ON PARK PROPERTIES LOCATED IN THE PENNSYLVANIA COUNTIES OF
DELAWARE, MONTGOMERY AND PHILADELPHIA**

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Animal and Plant Health Inspection Service
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1.0 CHAPTER 1: PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION

The United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Wildlife Services (WS)[1] program is authorized by Congress to manage a program to reduce human/wildlife conflicts. WS's vision is to improve the coexistence of people and wildlife, and its mission is to provide Federal leadership in managing problems caused by wildlife. WS's activities are directed at the protection of America's agricultural, industrial and natural resources, and to safeguard public health and safety. This is accomplished through:

- Training of wildlife damage management professionals
- Development and improvement of strategies to reduce economic losses and threats to humans from wildlife
- Collection, evaluation, and dissemination of management information
- Cooperative wildlife damage management programs
- Informing and educating the public on how to reduce wildlife damage and
- Providing data and a source for limited-use management materials and equipment, including pesticides

This Environmental Assessment (EA) evaluates ways by which this responsibility can be carried out by WS to assist the City of Philadelphia, Fairmount Park Commission (Commission) in reducing white-tailed deer (*Odocoileus virginianus*) densities at properties administered by the Fairmount Park Commission in the Pennsylvania counties of Delaware, Montgomery and Philadelphia.

WS is a cooperatively funded, service oriented program. Before any operational wildlife damage management is conducted, an *Agreement for Control of Animal Damage* is completed by WS and the land owner/administrator. WS cooperates with private property owners and managers and with appropriate land and wildlife management agencies, as requested, with the goal of effectively and efficiently resolving wildlife damage problems in compliance with all applicable Federal, State, and local laws. WS uses an integrated wildlife damage management (IWDM) approach, as described in the Final Environmental Impact Statement (FEIS) developed by WS for the national WS program (USDA 1994). WS uses and recommends appropriate legal, effective, practical, and environmentally responsible methods to address wildlife damage problems. IWDM provides a means of reducing future losses or damage associated with or caused by wildlife.

WS consists of operations and research capabilities. The majority of the program's research is conducted by the WS National Wildlife Research Center through its central location in Fort Collins, CO and its research stations around the country. WS's operational work is conducted through its two regional offices (Lakewood, CO and Raleigh, NC) and State/District offices in the fifty states. The WS State Office in NJ administers the WS program for NJ and PA. Work of the NJ/PA WS program consists primarily of technical and operational assistance to reduce

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[1] As of August 1, 1997, the name of the USDA, APHIS Animal Damage Control (ADC) Program was changed to Wildlife Services (WS). All references to ADC are considered synonymous to WS.

migratory bird damage (ie. Canada geese, blackbirds, gulls). WS maintains a District Office in Summerdale, PA. Assistance is provided for mammal damage management pursuant to funded contracts and permit, authorizations, and requests from state wildlife management agencies and affected individuals, organizations, and other agencies.

In October, 2000, the WS program in PA received a letter from the Fairmount Park Commission requesting that WS biologists assist the Commission in reaching their white-tailed deer population goals to reduce habitat destruction, impacts on species diversity, disease transmission and hazards associated with deer-vehicle collisions from elevated deer densities within the park. WS has prepared this EA to assist in evaluating deer damage management assistance to the Fairmount Park Commission, and to communicate with the public the analysis of potential impacts for issues of concern in relation to alternative means of meeting deer damage management goals and objectives. This analysis covers WS's consideration of deer damage management assistance to the Fairmount Park Commission for the year 2000 and beyond, depending upon subsequent requests for assistance from the Fairmount Park Commission. Subsequent requests would be based on the Fairmount Park Commission's analysis of deer populations, deer damage to the park's habitat, reduction of deer/vehicle collisions, and the results/effectiveness of WS-conducted deer control operations.

1.2 PURPOSE

The purpose of this EA is to address and evaluate the potential impact to the human environment from WS involvement in assisting the Fairmount Park Commission in reaching their white-tailed deer population goal objective by participating in one aspect of the Commission's Deer Management Program. That is to reduce deer densities on properties administered by the Commission in Delaware, Montgomery and Philadelphia Counties in the state of Pennsylvania.

1.2.1 Fairmount Park Commission Deer Management Plan

The Commission's management goal is to maintain healthy, sustainable ecosystems. To assist in fulfilling this responsibility, the Commission contracted a consultant to research and develop Deer Management Recommendations for the Wissahickon Valley Park. (Natural Resource Consultants, Inc, 1996) The Recommendations were developed for one section of the properties managed by the Fairmount Park Commission, however similar deer conflicts occur throughout the entire park system and therefore the Deer Management Recommendations will be used as a planning tool to address these similar deer management problems as they occur throughout the entire Fairmount Park Commission park system. These Recommendations establish an Integrated Wildlife Damage Management approach to resolving deer damage problems. This integrated approach aligns with WS philosophy and standard operating procedures for addressing wildlife damage problems and the Recommendations are incorporated by reference herein. Management alternatives include fencing, deer repellents, predator restoration, and several population reduction options. Deer population management methods addressed include capture and transfer, wildlife contraception, public hunting, controlled public hunting, sharpshooting by professionals, and capture and euthanasia.

WS's role under the proposed action analyzed in this EA would be to assist directly in meeting one component of the integrated strategy, i.e., to conduct sharp-shooting to reduce deer numbers. Any of the actions recommended in the Commission's Deer Management Plan could be conducted by the Commission independently of any involvement or oversight by WS.

1.2.2 Summary of Proposed Action

The proposed action is for WS to assist the Fairmount Park Commission in reaching their white-tailed deer population goal objective by participating in one aspect of the Commission's Deer Management Program. That is to reduce deer densities on properties administered by the Commission in Delaware, Montgomery and Philadelphia Counties in the state of Pennsylvania. The Commission has determined that deer population reductions are necessary to reduce the negative impacts that white-tailed deer are having on the park system and surrounding properties. WS would shoot deer during night time hours during the time frame authorized by the Commission, pursuant to a Pennsylvania Game Commission Special Permit issued to the Fairmount Park Commission. Under permit, removal activity could occur during any month from August through April. Deer would be killed by the use of firearms and specialized equipment to ensure that deer are safely removed in the most humane method possible. Quick-kill head/neck shots will be used whenever possible to ensure humane and rapid death. Deer that are killed will be made available for donation to local charitable food banks for distribution. All applicable Federal, State, and local laws will be adhered to.

1.3 NEED FOR DEER DAMAGE MANAGEMENT

1.3.1 Defining the Conflict

An aerial infrared deer survey was completed over a 5.3 square mile area in two separate but distinct regions of the park (Wissahickon Valley and Pennypack Park) during the night time hours in the months of February and March 2000. Results from this survey revealed a minimum deer density of 635 deer over the surveyed area (an average of 120 deer per square mile). This deer density is approximately ten times over the park's over-winter population goal of 8-10 deer per square mile. A private ecological consulting group, studying the effects of the deer population on the park, reported that the over-winter population goal of 8-10 deer per square mile would be appropriate and necessary to protect the Park's long-term ecological health (Hengst 1999).

The biological carrying capacity (BCC) of a wildlife population is defined as the maximum number of animals that an area can support without degradation to the animal's health and the environment over an extended period of time. When this number is exceeded, the health of the population begins to suffer, reproduction declines, parasitism and disease increase, and habitat quality and diversity decrease due to overbrowsing of plant species preferred as food by deer (Kroll et al. 1986). Overbrowsing negatively impacts the habitat and landscape, and overall animal health declines due to less nutritious food items being available. In evaluating the situation in

parks administered by the Commission, consulting biologists observed signs of overbrowsing on native vegetation as well as ornamental landscaping suggesting that the deer population in the area are reaching the BCC (Natural Resource Consultants, Inc. 1996).

The cultural carrying capacity (CCC), more recently referred to as the Wildlife Acceptance Capacity (WAC), is defined as the maximum density of a given species that can coexist compatibly with the local human population (Decker and Purdey 1988). This term is useful because it defines when conflicts with deer have exceeded an acceptable level, and provides managers with a target for establishing management objectives. Certain factors may influence the WAC, such as landscape or vegetation impacts, threats to public safety, the potential for illegal killing of deer, and personal attitudes and values. The threshold of wildlife damage acceptance is a primary limiting factor in determining the WAC. For any given damage situation, there will be varying acceptance thresholds by those directly, as well as indirectly, affected by the damage. While the WAC and BCC are not the same, both are important factors in managing conflicts between humans and deer. The Commission has determined that the WAC in this situation is approximately 8 to 10 deer per square mile.

1.3.2 History of Deer Management at the Park

Over the last 15 years, an ever increasing deer population problem has been recognized in the Fairmount Park system in the City of Philadelphia. A chronological history of the Commission's efforts to manage this problem follows:

- In 1994, The Friends of the Wissahickon, a citizen support group interested in the conservation of the Wissahickon Valley (the largest park within the Fairmount Park system), commissioned a two year study of the vegetation and ecological health of the Wissahickon forest. In 1996, results of this study indicate decimation of the forest by white-tailed deer, which number more than 10 times than the valley can adequately support to maintain a diverse and healthy environment. A deer cull using professional sharpshooters was recommended as the best way to effectively remove a large number of deer.
- May 1998, The Friends of the Wissahickon requested that the Commission apply for a municipal deer control permit from the PGC in an effort to reduce the deer population.
- September 1998, after two public hearings and the publication of several newspaper articles informing the public of the results of the study, the Commission voted in favor of applying for a deer control permit and reducing the deer population by using professional wildlife biologists to shoot deer.
- December 1998, the Commission submitted the permit application to the PGC for a deer removal operation in the Wissahickon to begin February 1, 1999.
- March 10, 1999, PGC granted the Commission a permit to conduct a deer removal operation. A professional private wildlife contractor was hired.
- March 15, 1999, contractor started field preparation for removal operation.

- March 19, 1999, opponents attempted to halt the process in court by an injunction. "Baron et al vs. City of Philadelphia" is heard and the request for injunction denied.
- March 24 and 25, 1999, contractor removed 43 deer from the Wissahickon portion of Fairmount Park without any impacts to public safety or any other negative effects.
- March 26, 1999, opponents attempted to halt process in Commonwealth court. Case continued until March 29. "Baron et al vs. PGC" dismissed on that date for "failure to exhaust all administrative remedies".
- March 31, 1999, deer removal operation concluded due to the onset of spring.
- November 1999, Commission applied to PGC for permit to resume removal operation on February 1, 2000.
- February 13, 2000, PGC granted deer control permit to the Commission.
- March 7, 2000, Removal operations terminated without any removals due to logistical problems.
- April 2000, population surveys indicated that there were approximately 250 deer in the Wissahickon valley and approximately 340 deer in the Pennypack valley, more than ten times than the park can support without major damage to the forest.
- June 2000, Commission requested WS to provide technical information in regard to deer removal at the park.
- October 2000, Commission requested WS to prepare an Environmental Assessment (EA) to explore the possibility of WS assisting in one part, of their deer management plan. Specifically, WS has been requested to prepare an EA for WS to assist in the removal of white-tailed deer at Fairmount Park.

1.3.3 Deer-Vehicle Collisions

Deer-vehicle collisions are a serious concern nationwide because of losses to property and the potential for human injury and death (Conover 1997, Conover et al. 1995, Romin and Bissonette 1996). Conover et al. (1995) estimated that 1.5 million deer-vehicle collisions occur each year in the United States and that the average cost to repair the vehicle after a collision with a deer was $1,500. Conover et al. (1995) estimated that the total damage to vehicles in the United States each year from deer-vehicle collisions is greater than $1 billion. Additionally, Conover et al. (1995) estimated that deer-vehicle collisions in the United States result in 29,000 injuries and 211 human fatalities annually. Nationwide Insurance (1993) estimated that 120 people are killed annually in animal-vehicle accidents in the United States.

Hengst (1999) reported that road-killed deer in the City of Philadelphia increased nearly 25-fold between 1971 and 1993 with 40 and 924 being reported in each year respectively. During this same time period, the statewide figures for road-killed deer less than doubled. The PGC reported that in 1997 over 42,100 deer were killed statewide in deer vehicle collisions, with the counties of Delaware, Montgomery and Philadelphia reporting 353; 667; and 10, respectively (T. Hawk, Pers. Comm. 2000). These reports are only for deer that were reported as killed and therefore are a minimum number at best. Deer that are struck by vehicles and are not killed or located are likely going unreported.

1.3.4 Damage to Landscaping

Deer browsing damages and destroys landscaping and ornamental trees, shrubs, and flowers. As present rural areas are developed, deer habitat may actually be enhanced because fertilized lawns, gardens, and landscape plants serve as high quality sources of food (Swihart et al. 1995). Furthermore, deer are prolific and adaptable, characteristics which allow them to exploit and prosper in most suitable habitat near urban areas, including residential areas (Jones and Witham 1995). Although damage to landscaping and ornamental plants has not been quantified in and around the parks, deer have caused severe and costly property damage to homeowners, the parks, and common areas. The succulent nature of many ornamental landscape plants, coupled with high nutrient contents from fertilizers, offers an attractive food source for deer. In addition to browsing pressure, male white-tailed deer damage ornamental trees and shrubs by antler rubbing which results in broken limbs and bark removal. While large trees may survive antler rubbing damage, smaller saplings often die or become scarred to the point that they are not aesthetically acceptable for landscaping.

In 1998, a browse monitoring study was conducted by the Commission to investigate impacts of deer on vegetation of newly planted trees and shrubs on park property. A deer resistant enclosure was setup to investigate the affects of deer browsing on newly planted shrubs and trees. The study revealed that the deer browsing rate for trees and shrubs outside of the deer fencing was 56%, while the browse rate inside of the enclosure was only 3%. The 3% rate inside of the enclosure was attributed to the deer ability to browse trees and shrubs through the fence.

Since 1995 deer damage complaints from private property owners adjacent to park properties have increased approximately 4-fold (B.A. Bessler, Pers. Comm. 2000). The majority of the complaints regarded deer damage to landscape trees, shrubs and flowers. Furthermore, deer have impacted landscaping at the park to the extent that deer proof fence enclosures are required to protect vegetation for stream bank restoration projects and forest reclamation projects. (B.A. Bessler, Pers. Comm. 2000).

1.3.5 Damage to Natural Resources

Deer overabundance can affect native vegetation and natural ecosystems in addition to ornamental landscape plantings. White-tailed deer selectively forage on vegetation (Strole and Anderson 1992), and thus can have substantial impacts on certain herbaceous and woody species and on overall plant community structure (Waller and Alverson 1997). These changes can lead to adverse impacts on other wildlife species, which depend on these plants for food and/or shelter. Numerous studies have shown that overbrowsing by deer can decrease tree reproduction, understory vegetation cover, plant density, and plant diversity (Warren 1991). For example, in the Great Smokey Mountains National Park in Tennessee, an area heavily populated by deer had a reduction in the number of plant species, a loss of hardwood species and a predominance of conifer species compared to an ecologically similar control area with fewer deer (Bratton 1979). This alteration and degradation of habitat from over-browsing by deer can have a

detrimental effect on deer herd health and may displace other wildlife communities (e.g., neotropical migrant songbirds and small mammals) that depend upon the understory vegetative habitat destroyed by deer browsing (VDGIF 1999). Similarly, De Calesta (1997) reported that deer browsing affected vegetation that songbirds need for foraging surfaces, escape cover, and nesting. Species richness and abundance of intermediate canopy nesting songbirds was reduced in areas with higher deer densities (De Calesta 1997). Intermediate canopy-nesting birds declined 37% in abundance and 27% in species diversity at higher deer densities. Five species of birds were found to disappear at densities of 38.1 deer per square mile and another two disappeared at 63.7 deer per square mile. Casey and Hein (1983) found that 3 species of birds were lost in a research preserve stocked with high densities of ungulates and that the densities of several other species of birds were lower than in an adjacent area with lower deer density. (Both De Calesta and Casey and Hein's study area were located in Pennsylvania.) Waller and Alverson (1997) hypothesize that by competing with squirrels and other fruit eating animals for oak mast, deer may further affect many other species of animals and insects.

Hengst (1999) reported that a 1994 ecological study investigating the impacts that white-tailed deer population, in the Wissahickon section of Fairmount Park, revealed that white-tailed deer were negatively impacting the forest regeneration of native plant species, reducing the thickness of understory vegetation, and over-browsed many plant species in the park. Spicebush, which ranks low on the list of deer food preference, often dominated areas in which deer have selectively removed more palatable forage. In one section of the park, even spicebush was browsed at the rate of 57.7%.

1.3.6 Threats to Human Health and Safety from Disease Transmission

Currently, the most common zoonosis involving deer is Lyme disease, caused by the spirochete *Borrelia burgdorferi* and vectored to humans by the deer tick (*Ixodes dammini* in the eastern U.S.) (Conover 1997). Initial symptoms of Lyme disease include a flu-like illness with headache, fever, muscle or joint pain, neck stiffness, swollen glands, jaw discomfort, and inflammation of the eye membranes (McLean 1994). If left untreated, heart, nervous system, and joint manifestations may develop (McLean 1994).

Research has shown a correlation between infected ticks, deer numbers, and Lyme disease cases (Deblinger et al. 1993, Magnarelli et al. 1984). Deer are an important reservoir for Lyme disease and are the primary host for the adult deer tick (Conover 1997). Lyme disease incidence has also been linked to landscape features such as urban developed areas versus wooded residential areas (MCHD 2000). According to MCHD (2000), the CDC calculated an annual incidence of 5.5 cases/100,000 population over a 5 year period (1993-97). Pennsylvania has an annual average incidence of 21 cases/per 100,000 population, with the north-central and southeastern parts having the highest incidence (MCHD 2000). In 1999, the incidence of lymes disease per 100,000 population in Pennsylvania was 18.9, with the counties of Delaware, Montgomery, and Philadelphia having 18.6, 52.2 and 23.5 cases per 100,000 population, respectively (MCHD 2000). The number of reported cases of Lyme disease may reflect low incident of transmission (Davidson and Nettles 1997) or difficulties diagnosing the disease.

In 1986, another serious tick-borne zoonosis, human ehrlichiosis, was discovered in the United States (McQuiston et al. 1999). Two distinct forms of the illness may affect humans: human monocytic ehrlichiosis (HME) and human granulocytic ehrlichiosis (HGE) (McQuiston et al. 1999, Lockhart et al. 1997). The bacterial agents that cause ehrlichiosis are transmitted to humans by infected ticks which acquire the agents from feeding on infected animal reservoirs (McQuiston et al. 1999). Ehrlichiosis in humans may result in fever, headache, myalgia, nausea, and occasionally death (McQuiston et al. 1999, Little et al. 1998). HME is the type of ehrlichiosis predominantly found in the southeastern, south-central, and mid-Atlantic U.S. White-tailed deer are major hosts for *Amblyomma americanum*, the tick which transmits HME, and deer have been identified as a reservoir for HME (Little et al. 1998, Lockhart et al. 1997).

1.4 RELATIONSHIP OF THIS ENVIRONMENTAL ASSESSMENT TO OTHER ENVIRONMENTAL DOCUMENTS

WS conducted a NEPA process and developed a Final Environmental Impact Statement (FEIS) on the national APHIS/WS program (USDA 1994). The FEIS contains detailed discussions of potential environmental impacts from various wildlife damage management methods. CEQ regulations for implementing NEPA authorize agencies to eliminate repetitive discussions of issues addressed in programmatic documents by tiering to the broader document (CFR 1500.4(I);1502.20). Therefore, this EA is tiered to the FEIS, and pertinent information available in the FEIS has been incorporated by reference into this EA. The FEIS may be obtained by contacting: USDA APHIS WS Operational Support Staff, 4700 River Rd., Unit 87, Riverdale, MD 20737-1234.

1.5 DECISIONS TO BE MADE

Based on the scope of this EA, the decisions to be made are:

- Should WS shoot deer to assist the Commission in meeting its objectives of deer damage management?
- What mitigation measures should be implemented?
- Would the proposed action have significant impacts requiring an EIS analysis?

1.6 SCOPE OF THIS ENVIRONMENTAL ASSESSMENT ANALYSIS

1.6.1 Actions Analyzed.

This EA evaluates potential environmental impacts of shooting deer by WS on properties administered by the Fairmount Park Commission in the Pennsylvania counties of Delaware, Montgomery and Philadelphia.

1.6.2 Period for Which this EA is Valid.

This EA will remain valid until WS determines that new needs for action, new alternatives having different environmental effects, and/or new issues must be analyzed. At that time, this analysis and document will be reviewed and revised as necessary. This EA will be reviewed annually to ensure that it is complete and current.

1.6.3 Site Specificity.

This EA analyzes potential impacts of WS's involvement in the Fairmount Park Commission's deer management program that would occur on properties administered by the Commission in the Pennsylvania counties of Delaware, Montgomery and Philadelphia. The standard WS Decision Model (Slate et al. 1992) and WS Directive 2.105 is the decision-making process for determining methods and strategies to use or recommend for individual actions conducted by WS (See USDA 1994, Chapter 2 and Appendix N for a more complete description of the WS Decision Model and examples of its application). Decisions made using this process will be in accordance with mitigation measures and standard operating procedures described herein and adopted or established as part of the decision.

1.6.4 Public Involvement/Notification.

As part of this process, and as required by the Council on Environmental Quality (CEQ) and APHIS-NEPA implementing regulations, this document and its Decision are being made available to the public through "Notices of Availability" (NOA) published in local media and through direct mailings of NOA to parties that have specifically requested to be notified. New issues or alternatives raised after publication of public notices will be fully considered to determine whether the EA and its Decision should be revisited and, if appropriate, revised.

1.7 OBJECTIVE

The objective of the proposed action is to assist the Fairmount Park Commission in reducing the number of deer residing in or frequenting the park properties located in Delaware, Montgomery and Philadelphia counties. The Commission has established an over-winter population density goal of 8-10 deer per square mile. The estimated initial number of deer that would be removed is 300. The deer population within the park would be reevaluated annually prior to removal activities to determine if the remaining deer are within the population goals and objectives of the Commission. Additional deer may be removed after reevaluation to bring the population into the desired population densities. Deer would not be removed to a number below the overwinter deer population density goal of 8-10 deer per square mile.

1.8 AUTHORITY AND COMPLIANCE

1.8.1 Authority of Federal and State Agencies in Deer Damage Management in Pennsylvania[1]

1.8.1.1 WS Legislative Authorization

WS is directed by law to protect American agriculture and other resources from damage associated with wildlife. Wildlife damage management is directed at alleviating damage or other problems caused by, or related to, the presence of wildlife. It is an integral component of wildlife management (Leopold 1933, The Wildlife Society 1990, Berryman 1991).

The primary statutory authority for the WS program is the Animal Damage Control Act of 1931 (7 U.S.C. 426-426c; 46 Stat. 1468), which provides that:

"The Secretary of Agriculture is authorized and directed to conduct such investigations, experiments, and tests as he may deem necessary in order to determine, demonstrate, and promulgate the best methods of eradication, suppression, or bringing under control on national forests and other areas of the public domain as well as on State, Territory or privately owned lands of mountain lions, wolves, coyotes, bobcats, prairie dogs, gophers, ground squirrels, jackrabbits, brown tree snakes and other animals injurious to agriculture, horticulture, forestry, animal husbandry, wild game animals, furbearing animals, and birds, and for the protection of stock and other domestic animals through the suppression of rabies and tularemia in predatory or other wild animals; and to conduct campaigns for the destruction or control of such animals. Provided that in carrying out the provisions of this Section, the Secretary of Agriculture may cooperate with States, individuals, and public and private agencies, organizations, and institutions."

Since 1931, with changes in societal and professional wildlife management values, WS policies and programs place greater emphasis on the part of the Act discussing "*bringing (damage) under control*," rather than "*eradication*" and "*suppression*" of wildlife populations. In 1988, Congress strengthened the legislative authorization of WS with the Rural Development, Agriculture, and Related Agencies Appropriations Act. This Act states, in part:

"That hereafter, the Secretary of Agriculture is authorized, except for urban rodent control, to conduct activities and to enter into agreements with States, local jurisdictions, individuals, and public and private agencies, organizations, and institutions in the control of nuisance mammals and birds and those mammal and bird species that are reservoirs for zoonotic diseases, and to deposit any money collected under any such agreement into the

[1] See Chapter 1 of USDA (1994) for a complete discussion of federal laws pertaining to WS.

appropriation accounts that incur the costs to be available immediately and to remain available until expended for Animal Damage Control activities."

Therefore, conduct of direct management programs to reduce wildlife damage may be conducted by WS pursuant to funded contracts and agreements with other agencies, organizations, corporations, groups, and individuals.

1.8.1.2 Pennsylvania Game Commission (PGC)

The Pennsylvania Game Commission is charged by law 322(a) Title 34 "to protect, propagate, manage and preserve the game or wildlife of this Commonwealth and to enforce, by proper actions and proceedings, the law of this Commonwealth relating thereto."

The PCG has authority to manage deer in the Commonwealth of Pennsylvania under Game and Wildlife Code Title 34 and Title 58. Under Title 58, 147.321 -147.329 and Title 34, Chapter 29, the PGC has the authority to permit the taking of deer to resolve damage problems covering this proposed action. The Fairmount Park Commission would remove deer in accordance with the appropriate permit granted to the Commission from PGC, pursuant to all relevant laws, regulations, and policies.

1.8.2 Compliance With Other Federal Laws.

Several federal laws authorize, regulate, or otherwise affect WS deer damage management. WS complies with these laws, and consults and cooperates with other agencies as appropriate.

1.8.2.1 National Environmental Policy Act (NEPA)

The National Environmental Policy Act (NEPA) of 1969 (42 USC Section 4231 et seq.) is implemented by Federal Agencies pursuant to Council on Environmental Quality (CEQ) Regulations (40 CFR Section 1500-1508) and agency implementing regulations. WS prepares analysis of the potential environmental impacts of program activities to meet procedural requirements of NEPA and to facilitate planning, decision-making, and public and interagency involvement. NEPA and its supporting regulations require that an EA be a concise public document that provides sufficient evidence and analysis to determine if an EIS should be prepared, aids in WS's compliance with NEPA, describes the need for action, alternatives, and environmental impacts, and includes a list of agencies/persons consulted.

1.8.2.2 Endangered Species Act (ESA)

It is Federal policy, under the ESA, that all Federal agencies seek to conserve threatened and endangered (T&E) species and utilize their authorities in furtherance of the purposes of the Act (Sec.2(c)).Where appropriate, WS conducts Section 7 consultations with the U.S. Fish & Wildlife Service (USFWS) to ensure that "*any action authorized, funded or carried out by such an agency . . . is not likely to jeopardize the continued existence of any endangered or threatened species . . . Each agency shall use the best scientific and commercial data available*" (Sec.7(a)(2)). WS obtained a Biological Opinion (BO) from USFWS in 1992 describing potential effects on T&E species and prescribing reasonable and prudent measures for avoiding jeopardy (USDA 1994, Appendix F). WS is in the process of initiating formal consultation at the programmatic level to reevaluate the 1992 B.O. and to fully evaluate potential effects on T&E species listed or proposed for listing since the 1992 FWS BO. In addition to these programmatic efforts to comply with the ESA, individual WS programs may confer with FWS Ecological Services in the State of the proposed action to determine the presence of T&E species in project areas, and to identify potential impacts of proposed actions and alternatives on these species.

1.9 PREVIEW OF REMAINING CHAPTERS

The EA is composed of 5 Chapters and Appendices. Chapter 2 analyzes issues and affected environment. Chapter 3 describes each alternative, those not considered in detail, and mitigation and SOP's. Chapter 4 analyzes the environmental impacts associated with each alternative considered in detail. Chapter 5 contains the list of preparers and persons/agencies consulted. The Appendices contain references, T&E species lists (Federal and Pennsylvania), correspondence between State and Federal Agencies regarding impacts of the proposed action, and a map of the proposed project area.

CHAPTER 2: ISSUES AND AFFECTED ENVIRONMENT

Chapter 2 contains discussion of: 1. description of affected environment 2. issues that are addressed in the analysis of alternatives and impacts, and 3. issues not considered in detail (with rationale).

2.1 AFFECTED ENVIRONMENT

In 1867, the General Assembly of the Commonwealth of Pennsylvania created the Fairmount Park Commission and empowered them with the responsibility for protecting the resources within the park. The Commission manages 8900 acres, including 65 parks (Appendix C) and maintains a mission to preserve its open spaces, streams, woodlands, landscapes and structures, to provide recreational opportunities for the citizens and visitors of Philadelphia. The diversity of the Fairmount Park system means that the Commission must satisfy the numerous interests of users. As land managers, the Commission's attention is focused on the designed landscapes, natural resources and cultural assets within its domain. It is incumbent upon the Commission to offer experiences to enhance the quality of life while preserving the natural environment for current and future generations.

The two largest portions of the park, the Wissahickon Valley (1841 acres) and the Pennypack Park (1618 acres) are nearly entirely forested. Many of the woodland stands are dominated by large mature trees with forest types including oak/beech, mixed oak, hemlock/hardwood, tulip tree/hardwood and flood plain forests dominated by box elder, sycamore and silver maple (Natural Resource Consultants, Inc. 1996). The parks have an extensive trail system. Trail users include hikers, joggers, bikers, horseback riders, bird watchers, and other outdoor enthusiasts.

2.2 ISSUES ADDRESSED IN THE ANALYSIS OF ALTERNATIVES

The following issues have been identified as areas of concern requiring consideration in this EA.

- Effects on Target Deer Populations
- Effects on Nontarget Species Populations, Including Threatened and Endangered Species
- Effects on Human Health and Safety
- Effects on Aesthetics
- Humaneness and Animal Welfare Concerns

2.2.1 Effects on Target Deer Populations

A common concern among members of the public is whether wildlife damage management actions adversely affect the viability of target species populations. Deer populations for the state is estimated to be 1.4 million (T. Hawk, Per. Comm. 2000). As reported by the PGC (www.pgc.state.pa.us), the statewide and the tri-county area deer hunter harvest levels have remained stable from 1993-1999 (Table1). Statewide deer hunters harvested an average of 385,473 white-tailed deer annually with an average of

1,403; 2,297; and 139 being harvested annually in Delaware, Montgomery and Philadelphia counties, respectively.

An aerial infrared deer survey was completed over a 5.3 square mile area in two separate but distinct regions of the park (Wissahickon Valley and Pennypack Park) during the night time hours in the months of February and March 2000. Results from this survey revealed a minimum deer density of 635 deer over the surveyed area (120 deer per square mile). This deer density is well over the park's over-winter population goal of 8-10 deer per square mile. A private ecological consulting group, studying the effects of the deer population on the park, reports that the over-winter population goal of 8-10 deer per square mile is appropriate and necessary to protect the Park's long-term health (Hengst 1999).

2.2.2 Effects on Nontarget Species Populations, Including Threatened and Endangered Species

WS, the Commission, PGC and the public are concerned about the potential impact of damage management methods and activities on nontarget wildlife and plants, particularly threatened and endangered (T&E) Species. WS's standard operating procedures include measures intended to mitigate or reduce the effects on nontarget species populations (Chapter 3).

Special efforts are made to avoid jeopardizing T&E species through biological evaluations of the potential effects and the establishment of mitigation measures. The Pennsylvania Department of Conservation and Natural Resources, Bureau of Forestry provided a list of State T&E species (Appendix F). USFWS has provided a list of Federal T&E species (Appendix E) that occur (or have historically occurred) in PA. Federally-listed threatened and endangered species in the proposed project area counties in PA are: bog turtle (*Clemmys muhlenbergii*) (Delaware, Montgomery, Philadelphia), small whorled pogonia (*Isotria medeoloides*) (Montgomery, Philadelphia).

The Commission has identified at least four plant species that are classified as Pennsylvania Species of Special Concern within the park system. They include, Walter's barnyard grass (*Echinochloa walteri*), elephant's foot (*Elephantopus carolinianus*), Eupatorium (*Eupatorium rotundifolium*), and southern red oak (*Quercus falcata*). The Commission is also in the process of reintroducing the Bronze Copper butterfly (*Lycaena hyllus*), another species listed as Special Concern, into the park. Obtaining the Commission's deer management goal would positively affect these and other species by reducing the amount of browse and trampling activity.

2.2.3 Effects on Human Health and Safety

Some people may be concerned that WS's use of firearms could impact human safety (scaring deer into traffic, accidentally shooting a person, etc.).

2.2.4 Effects on Aesthetics

The effects of alternatives on human affectionate bonds with individual deer and on general aesthetic values of deer vary widely among people. Some deer live in very close proximity to humans, and people in these situations may feed deer and/or develop emotional/affectionate attitudes toward the deer. Other people do not develop emotional bonds with individual deer, but experience aesthetic enjoyment from observing them and/or the knowledge of the existence of deer nearby.

Public reaction to wildlife damage management is variable because individual members of the public may have very different attitudes toward wildlife. Some individuals that are negatively affected by wildlife support removal or relocation of damaging wildlife. Other individuals affected by the same wildlife may oppose removal or relocation. Individuals unaffected by wildlife damage may be supportive, neutral, or opposed to wildlife removal depending on their individual values and attitudes.

2.2.5 Humaneness and Animal Welfare Concerns.

Research indicates that the public may be willing to accept lethal wildlife management methods if they are humane (i.e., minimize apparent pain and suffering of the target animal) (Kellert 1993, Schwartz et al. 1997). The issue of humaneness and animal welfare, as it relates to the killing or capturing of wildlife, is an important and complex concept. Wildlife damage management for societal benefits could be compatible with animal welfare concerns, if *" the reduction of pain, suffering, and unnecessary death is incorporated in the decision making process" (Schmidt 1989).* Suffering is described as a *" . . . highly unpleasant emotional response usually associated with pain and distress."* However, suffering *" . . . can occur without pain . . . ,"* and *" . . . pain can occur without suffering . . . "* (AVMA 1987). Because suffering carries with it the implication of a time frame, suffering is considered to be minimized where death is immediate, such as occurs with shooting. The challenge in coping with this issue is how to achieve the least amount of animal suffering within the constraints imposed by current technology.

Mitigation measures and standard operating procedures used to maximize humaneness are listed in Chapter 3.

2.3 ISSUES NOT CONSIDERED IN DETAIL (WITH RATIONALE)

2.3.1 Impact on Biodiversity

The impacts of the current WS program on biodiversity are not significant nationwide or statewide (USDA 1994). The goal of integrated wildlife damage management programs is to reduce damage, and some programs contain a component of reducing the local target species population. The proposed action would have no effect on biodiversity at the state and county level. Biodiversity on park properties may be positively affected. Regarding deer, local areas may have lower deer densities after the project, but no area would be devoid of deer. No other wildlife species would be taken or otherwise negatively

affected. Habitats, ecosystems, and secondary impacts on other species may improve within the park and adjacent properties.

2.3.2 Threshold of Loss

Some people believe that wildlife damage is a part of nature, and that a "threshold of loss" should be established before wildlife damage management is conducted. Some wildlife damage is expected and accepted, but in some cases deer damage has exceeded the acceptable level and has created serious negative habitat impacts. WS has the legal direction to respond to requests for wildlife damage management assistance, and it is program policy to aid each requester with the goal of minimizing losses.

In a ruling for Southern Utah Wilderness Alliance, et al. Vs. Hugh Thompson, Forest Supervisor for the Dixie NF, et al., the United States District Court of Utah denied plaintiffs' motion for a preliminary injunction. In part the court found that a forest supervisor need only show that damage from wildlife is threatened, to establish a need for wildlife damage management (Civil No. 92-C-0052A January 20, 1993). Thus, there is judicial precedence indicating that it is not necessary to establish a criterion such as percentage of loss of a particular resource to justify the need for wildlife damage management actions.

2.3.3 Wildlife Damage Management Should be Fee Based.

WS was established by Congress as the program responsible for providing wildlife damage management to the people of the United States. Nationwide, funding for WS comes from Federal appropriations and a wide variety of other sources. These other sources include State and local (county or municipal) governments, Indian tribes, airports, agricultural commodity groups, and private corporations and individuals. In the United States, wildlife is a publically-owned resource that is managed in trust for the people by Federal and state wildlife management agencies. Wildlife damage management is an integral component of wildlife management. One common belief regarding funding for wildlife damage management is that it should be all taxpayers' shared responsibility to pay for wildlife damage to private property, since wildlife is a public resource. White-tailed deer are not afforded Federal protection, and Federal wildlife management agencies have no direct regulatory authority pertaining to deer management on private or non-Federally-owned public lands. Resident mammals, such as white-tailed deer are managed by state wildlife agencies in trust for the citizens of the state. However, Federal agencies, such as WS, may contract with states to conduct deer damage management projects.

2.3.4 Cost Effectiveness of Shooting Deer.

The Council on Environmental Quality (CEQ) regulations (40 CFR 1502.23) do not require a formal, monetized cost-benefit analysis to comply with NEPA. Consideration of this issue is not essential to making a reasoned choice among the alternatives being considered. The ADC EIS, Appendix L, p. 32 (USDA 1994) stated:

"Cost effectiveness is not, nor should it be, the primary goal of the APHIS ADC program. Additional constraints, such as environmental protection, land management goals, and others, are considered whenever a request for assistance is received. These constraints increase the cost of the program while not necessarily increasing its effectiveness, yet they are a vital part of the APHIS ADC program."

An analysis of cost-effectiveness in many deer damage situations is exceedingly difficult if not impossible to perform because the value of benefits, especially quantification of future losses that are prevented due to deer control, is not readily determined.

2.3.5 Executive Order 12898: Environmental Justice

Executive Order 12898, entitled, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" promotes the fair treatment of people of all races, income levels and cultures with respect to the development, implementation and enforcement of environmental laws, regulations and policies. Environmental justice is a priority within APHIS and WS. Executive Order 12898 requires Federal agencies to make environmental justice part of their mission, and to identify and address disproportionately high and adverse human health and environmental effects of Federal programs, policies, and activities on minority and low-income persons or populations. APHIS implements Executive Order 12898 principally through its compliance with NEPA. All WS activities are evaluated for their impact on the human environment and compliance with Executive Order 12898. WS personnel use only safe, legal, effective, and environmentally safe wildlife damage management methods, tools, and approaches. The proposed action would not result in any adverse or disproportionate environmental impacts to minority and low-income persons or populations. Additionally, the donation of venison to charitable organizations would be a benefit to the economically disadvantaged, and to other persons in need.

2.3.6 Protection of Children from Environmental Health and Safety Risks (Executive Order 13045)

Children may suffer disproportionately from environmental health and safety risks for many reasons. Deer damage control actions as proposed in this EA would include only safe, legal, effective and environmentally safe methods and tools, and would be conducted in areas and under circumstances where it is highly unlikely that children would be present or adversely affected. Therefore, implementation of the proposed action would not increase environmental health or safety risks to children.

2.3.7 National Historic Preservation Act (NHPA) of 1966 as amended

The National Historic Preservation Act (NHPA) of 1966, and its implementing regulations (36 CFR 800), requires Federal agencies to: 1) determine whether activities they propose constitute "undertakings" that can result in changes in the character or use

of historic properties and, 2) if so, to evaluate the effects of such undertakings on such historic resources and consult with the State Historic Preservation Office regarding the value and management of specific cultural, archaeological and historic resources, and 3) consult with appropriate American Indian Tribes to determine whether they have concerns for traditional cultural properties in areas of these Federal undertakings. WS activities as described under the proposed action do not cause ground disturbances nor do they otherwise have the potential to significantly affect visual, audible, or atmospheric elements of historic properties and are thus not undertakings as defined by the NHPA. The Commission's Historic Preservation Officer provided information regarding the affects of the proposed action on the historical character of the Park. (Appendix G)

3.0 CHAPTER 3: ALTERNATIVES INCLUDING THE PROPOSED ACTION

NEPA and CEQ regulations (1502.14) require that the EA contain a description of alternatives, including a No Action alternative which will serve as a baseline against which other alternative(s) are evaluated. At least one other alternative must be considered, and a "Preferred Alternative" identified. This section objectively evaluates the reasonable alternatives, and briefly describes alternatives not given detailed analysis.

Alternatives analyzed in detail are:

- Alternative 1 - No Action/ Current Program
- Alternative 2 - Proposed Action/WS Shoots Deer to Supplement Commission's Deer Management Program of Reducing Deer Densities.

3.1 DESCRIPTION OF THE ALTERNATIVES

3.1.1 Alternative 1 - No Action/Current Program.

The No Action alternative is a procedural NEPA requirement (40 CFR 1502), is a viable and reasonable alternative that could be selected, and serves as a baseline for comparison with the other alternative(s).

Under the No Action/Current Program Alternative, there would be no WS involvement in the Commission's ongoing deer management program to reduce deer damage within the park and adjacent properties (Section 2.1). However, the Commission would contract with a public or private entity to conduct the work that would no longer be available from WS.

3.1.2 Alternative 2 - Proposed Action/WS Shoots Deer to Supplement Commission's Program

The proposed action is for WS to assist the Fairmount Park Commission in reaching their white-tailed deer population goal objective by participating in one aspect of the Commission's Deer Management Program. That is to reduce deer densities on properties administered by the Commission in Delaware, Montgomery and Philadelphia Counties in the state of Pennsylvania. The Commission has determined that deer population reductions are necessary to reduce the negative impacts that white-tailed deer are having on the park system and surrounding properties. WS will shoot deer during night time hours up to 5 days a week during the time frame authorized and allowed pursuant to a Pennsylvania Game Commission Special Permit to remove wild deer and when authorized and requested by the Fairmount Park Commission. Deer will be killed by the use of firearms and specialized equipment to ensure that deer are safely removed in the most humane method possible. Quick-kill head/neck shots will be used whenever possible to ensure humane and rapid death. Deer that are killed will be made available for donation to local charitable food banks for distribution. All applicable Federal, State, and local laws will be adhered to.

3.2 STRATEGIES AND METHODS AVAILABLE TO WS IN PENNSYLVANIA.

The strategies and methods described below include those that could be used under Alternative 2.

3.2.1 Integrated Wildlife Damage Management (IWDM).

The most effective approach to resolving wildlife damage is to integrate the use of several methods simultaneously or sequentially. The philosophy behind IWDM is to implement the best combination of management methods in an effective manner while minimizing the potentially harmful effects on humans, target and nontarget species, property and the environment. IWDM may incorporate cultural practices (i.e., animal husbandry), habitat modification (i.e., exclusion), animal behavior modification (i.e., scaring), removal of individual offending animals, local population reduction, or any combination of these, depending on the circumstances of the specific damage problem. WS supports and implements the IWDM approach.

3.2.2 WS Decision Making.

WS personnel use a methodical thought process for evaluating and responding to damage complaints and requests for assistance that are depicted by the WS Decision Model described by Slate et al. (1992). WS personnel are frequently contacted after requesters have tried or considered nonlethal methods and found them to be impractical, too costly, or inadequate for reducing damage to an acceptable level. WS personnel assess the problem and evaluate the appropriateness and availability (legal and administrative) of strategies and methods based on biological, economic and social considerations. Following this evaluation, the methods deemed to be practical for the situation are developed into a management strategy. After the management strategy has been implemented, monitoring is conducted and evaluation continues to assess the effectiveness of the strategy. If the strategy is effective, the need for further management may be ended. In some cases, continual conduct of effective wildlife damage management activities is necessary to relieve damage. In terms of the WS Decision Model (Slate et al. 1992), most damage management efforts consist of continuous feedback between receiving the request and monitoring the results of the ongoing damage management strategy. The Decision Model is not necessarily a written process, but a mental problem-solving process common to most, if not all professions.

3.2.3 Deer Damage Management Methods Available to WS in PA

Pursuant to the Commission's request for assistance, shooting is the method available to WS to assist the Commission in conducting its integrated deer damage management program. Other methods that are legal, safe and available for use by the Commission experiencing habitat destruction from deer include: high profile fencing, pyrotechnics, chemical repellents, and modification of landscaping (plant type and placement). WS shooting of deer by permit, would be one aspect of the park's overall integrated deer damage management program.

Shooting would be conducted by WS biologists and biological technicians pursuant to permits issued by the PGC to the Commission authorizing WS to serve as the Commission's agents. Firearms and associated ammunition and other devices would be those authorized for use on the permit, and as described in Commonwealth laws, regulations, and policies.

3.3 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

Several alternatives were considered but not analyzed in detail. These were:

3.3.1 WS Provision of Technical Assistance and/or Nonlethal Operational Assistance

This alternative would require that WS implement only nonlethal strategies or methods, or require the Commission to implement them without conducting any lethal removal of deer. This alternative was not considered in detail because the Commission has not requested this assistance from WS. The Commission has specifically requested that WS provide supplemental assistance by shooting deer on park properties pursuant to permit, since WS has the expertise, training, and legal authority to assist in conducting deer damage control activities. The Commission has not requested that WS conduct deer damage activities other than shooting. Furthermore, WS has no authority to require that the Commission implement any specific methods or groups of methods.

3.3.2 Deer Population Reduction Through Reproductive Control

Reproductive control is often considered for use where wildlife populations are overabundant and where traditional hunting or lethal control programs are not publicly acceptable (Muller et al. 1997). Use and effectiveness of reproductive control as a wildlife population management tool is limited by population dynamic characteristics (longevity, age at onset of reproduction, population size and biological/cultural carrying capacity, etc.), habitat and environmental factors (isolation of target population, cover types and access to target individuals, etc.), socioeconomic and other factors. Population modeling indicates that reproductive control is more efficient than lethal control only for some rodent and small bird species with high reproductive rates and low survival rates (Dolbeer 1998). Additionally, the need to treat a sufficiently large number of target animals, multiple treatments, and population dynamics of free-ranging populations place considerable logistic and economic constraints on the adoption of reproduction control technologies as a wildlife management tool for some species. Research into reproductive control technologies, however, has been ongoing, and the approach will probably be considered in an increasing variety of wildlife management situations.

Reproductive control for wildlife could be accomplished either through sterilization (permanent) or contraception (reversible, initial treatment usually followed by a booster and annual follow-up treatments). Sterilization could be accomplished through : 1. Surgical sterilization (vasectomy, castration, and tubal ligation), 2. Chemosterilization, and 3. Gene therapy. Contraception could be accomplished through: 1. Hormone implantation (synthetic steroids such as progestins), 2. Immunocontraception (contraceptive vaccines), and 3. Oral contraception (progestin administered daily). Research into the use of these techniques would consist of laboratory/pen experimentation to determine and develop the sterilization or contraceptive material or procedure, field trials to develop the delivery system, and field experimentation to determine the effectiveness of the technique in achieving population reduction.

The use of hormones was investigated (Matschke 1976, 1977 a, b, c, 1980, and Roughton 1979), and eventually rejected as an effective and efficient reproductive control technique for deer. Additionally, concerns related to costs and logistics of widespread distribution of drugged baits, dosage control and ingestion of baits by children and nontarget animals make oral contraception (by steroids) largely impractical (Lower et al. 1993). More recently, immunocontraception has been studied in various situations and locations, but its potential use appears limited due to considerable constraints regarding treatment and follow-up treatment of a sufficiently large number of target animals, varying immunogenecity of vaccines, genetic backgrounds of individual animals, age, nutritional status, stress and other factors (Becker et al. 1997, Becker et al. 1999). Immunocontraceptive vaccines prevent contraception by stimulating the production of antibodies that bioneutralize proteins or hormones essential for reproduction (Miller et al. 2000). The use of porcine zona pellucida (PZP) as a contraceptive agent in wildlife management has been investigated recently (Kirkpatrick et al. 1990, Turner and Kirkpatrick 1991, Turner et al. 1992, and Turner et al. 1996), but to date, there is no published documentation that immunocontraceptive vaccines have successfully reduced any free-ranging white-tailed deer herd or population. Additionally, Underwood and Verret (1998) reported that despite 5 years of PZP treatment, the Fire Island, NY deer population continued to grow, albeit at a slower rate. Other components of the reproductive system have been studied for immunocontraception as well, such as GnRH (Becker and Katz 1997, Becker et al. 1999).

Recently, Canadian researchers at Dalhousie University (Halifax, Nova Scotia) have investigated the use of a single-dose immunocontraceptive vaccine based on liposome delivery of PZP antigens (Spay Vac ™), and reported a 90% reduction in pup production by gray seals (*Halichoerus grypus*) (Brown et al. 1997). Fraker et al. (in press) reported that fertility of an island population of fallow deer (*Dama dama*) was greatly reduced by a single administration of Spay Vac ™ during the first year of treatment; a longer- term assessment is underway. Use of Spay Vac ™ on white-tailed deer is being investigated in CT by private researchers (enclosed herd of approximately 20 deer), and preliminary results on the

effectiveness of the material in reducing fawning will be available in 2001. Refinement of the delivery system and field application/experimentation on the ability of Spay Vac ™ to reduce free-ranging deer populations would occur in subsequent years.

Turner et al. (1993) note that although contraception in white-tailed deer may be used to limit population growth, it will not reduce the number of deer in excess of the desired level in many circumstances. They further contend that initial population reductions by various other means may be necessary to achieve management goals, and that reproduction control would be one facet of an integrated program. In sum, although immunocontraceptive technology has been variously effective in laboratories, pens, and in island field applications, it has not been effective in reducing populations of free-ranging white-tailed deer.

Development of a single-shot sterilization technique as an alternative to immunocontraception may be investigated by Rutgers scientists starting in 2000. One possible approach is gene therapy which could accomplish reproductive control via sterilization by causing death of the anterior pituitary cells that synthesize luteinizing hormone (LH), which triggers ovulation in females and spermatogenesis in males. Efficacy testing and development of a delivery systems will be investigated over the next few years (L. Katz, pers. comm.).

The use of reproductive control is subject to Federal and State regulation. Additionally: 1. No chemical or biological agent to accomplish reproductive control for free-ranging deer has been approved by Federal and PA authorities, 2. For deer, reproductive control has not been shown to reduce free-ranging populations or damage, 3. If an effective tool was legally available, and if the project area was fenced, it would take many years for the deer population to stabilize at a lower level, and habitat damage would continue to occur at unacceptably high levels, and 4. There are considerable logistic, economic and sociocultural limitations to the trap, capture and chemical treatment of the hundreds or thousands of deer that would be necessary to effect an eventual decline in the population. Because there is no tool currently available for field application, and due to considerable logistic, economic, and sociocultural limitations to the use of fertility control on free-ranging white-tailed deer, this approach is not considered for further analysis in this EA.

3.3.3 Trap and Relocate Deer

This alternative would involve capturing deer alive using cage-type traps followed by relocation of the captured deer to another deer management zone. Trapping and relocating deer is expensive ($273-$2,876/deer) (O'Bryan and McCullough 1985, Bryant and Ishmael 1991), time-consuming and inefficient (Ishmael and Rongstad 1984, O'Bryan and McCullough 1985, Diehl 1988, Jones and Witham 1990, Ishmael et al. 1995, and Cromwell et al. 1999). Physiological trauma and deer mortality during capture and transportation would be high and

deer mortality after relocation has ranged from 25-89% (Jones and Witham 1990, Mayer et al. 1993). Capture myopathy, a stress-related disease that results in delayed mortality of captured deer is an important factor (Cromwell et al., 1999), and may be as high as 26% (Rongstad and McCabe 1984). Although relocated deer usually do not return to their location of capture, some do settle in similar habitats and create similar problems as occurred in the original site. The American Veterinary Medical Association, the National Association of State Public Health Veterinarians, and the Council of State and Territorial Epidemiologists oppose relocation of mammals because of the risk of disease transmission (USDA 1994). High mortality rates of relocated deer, combined with the manner in which many of these animals die, make it difficult to justify relocation as a humane alternative to removal methods (O'Bryan and McCullough 1985, Jones and Witham 1990, Bryant and Ishmael 1991, Ishmael et al. 1995, and Cromwell et al. 1999).

3.3.4 Deer Removal by Licensed Hunters

This alternative was not analyzed in detail because WS does not have the legal authority to implement or regulate hunting. Furthermore, local laws/ordinances prevent hunting within the park as stipulated in the Regulations for the Government of Parks under the control of the Commissioners of Fairmount Park, Philadelphia, 1984 (as amended July 6, 1992) , SECTION 108. HUNTING, TRAPPING AND FISHING "No person shall hunt, trap, chase or capture, in any manner, any wildlife of any kind". And also the City of Philadelphia Ordinance 10-815 states "no person shall go upon land controlled by the City.... for the purpose of hunting wildlife."

Removal of deer, by shooting, under a special permit issued by the PGC is not considered hunting because their are separate rules and regulations that apply to licensed hunters than those that apply to permittees utilizing a special permit for wildlife removal.

Also, Webster's II New Riverside University Dictionary defines hunting as " The sport or activity of pursuing game." Sport is defined as "An active pastime: RECREATION." In no way should this activity be confused as any type of "sport" or "recreation". It should be understood that the removal of deer by wildlife professionals is considered a management practice conducted for one or more well considered reasons.

3.4 MITIGATION AND STANDARD OPERATING PROCEDURES

3.4.1 Mitigation in Standard Operating Procedures (SOPs)

Mitigation measures are any features of an action that serve to prevent, reduce, or compensate for impacts that otherwise might result from that action. The current

WS program, nationwide and in PA, uses many such mitigation measures and these are discussed in detail in Chapter 5 of the FEIS (USDA 1994).

Some key mitigating measures pertinent to the proposed action and alternatives that are incorporated into WS's Standard Operating Procedures are listed below. Any decision that results from this EA that includes WS actions would also include mitigation measures contained in this section.

- The WS Decision Model is used to identify effective wildlife damage management strategies and their impacts.
- Reasonable and prudent measures or alternatives are implemented to avoid impacts to T&E species.
- Research is being conducted to improve wildlife damage management methods and strategies so as to increase selectivity for target species, to develop effective nonlethal control methods, and to evaluate nontarget hazards and environmental impacts.

Some additional mitigating factors specific to the current program include:

- Management actions would be directed toward the park's deer population. Generalized population suppression across the State would not be conducted.

- WS uses methods and tools for which the risk of hazards to public safety and hazard to the environment have been determined to be low according to a risk assessment conducted in the programmatic EIS (USDA 1994, Appendix P). Where such activities are conducted on private lands or other lands of restricted public access, the risk of hazard to the public is even further reduced.

3.4.2 Additional Mitigation Specific to the Issues

The following is a summary of additional mitigation measures that are specific to the issues listed in Chapter 2 of this document.

3.4.2.1 Effects on Target Species Populations

WS activities would be directed at resolving deer damage at Fairmount Park Commission properties by reducing the local deer population through shooting, not by attempting to eradicate populations in the county or Commonwealth. WS take of deer would be recorded by WS and monitored by the PGC, to maintain it within the levels determined by the Commission to achieve desired deer population objectives.

3.4.2.2 Effects on Nontarget Species Populations Including T&E Species

WS personnel are trained and experienced to select the most appropriate tools and methods for taking target animals and excluding nontargets.

Nationally, WS has consulted with the FWS regarding potential impacts of control methods on T&E species, and abides by reasonable and prudent alternatives (RPAs) and/or reasonable and prudent measures (RPMs) established as a result of that consultation. For the full context of the Biological Opinion see the ADC FEIS, Appendix F (USDA 1994). Further consultation on species not covered by or included in that formal consultation process has been initiated with the USFWS and WS will abide by any RPAs, RPMs, and terms and conditions that result from that process to avoid jeopardizing any listed species.

In PA, WS has conferred with the Pennsylvania Game Commission, Environmental Review Coordinator, Division of Environmental Planning Habitat Protection, which has determined that the proposed WS action would have no effect on Commonwealth T&E species or their habitats and ecosystems. (Appendix F) The USFWS office provided a list of Federal T&E species in PA counties; WS has determined that the proposed WS actions will have no affect on Federal T&E species. WS will contact USFWS if the proposed action changes in the future.

3.4.2.3 Effects on Human Health and Safety

Trained and professional wildlife biologists and biological technicians employed by the WS program would conduct deer shooting activities according to all safety guidelines and through use of safe and legal firearms and equipment.

Target animals would be positively identified before shots are taken. Shooting would be done in safe zones and in such a manner as to not scare deer across roadways.

3.4.2.4 Effects on Aesthetics

WS shooting and handling of deer would be done professionally and discretely so as to minimize the impact of the public's aesthetic appreciation for deer.

Overall, deer would continue to be available for viewing and appreciation, although in some areas, deer densities would be lower. Deer would not be eradicated from the park.

3.4.2.5 Humaneness of Shooting Deer

WS biologists attempt to kill target animals as quickly and humanely as possible.

Research continues within the WS program with the goal of improving the selectivity and humaneness of tools and methods.

All management methods would be used in a manner that minimizes pain and suffering of individual animals, to the extent that the method is effective and its use is practical.

4.0 CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

Chapter 4 provides information needed for making informed decisions in selecting the appropriate alternative. The chapter analyzes the environmental consequences of each alternative in relation to the issues identified for detailed analysis in Chapter 2. This section analyzes the environmental consequences of the alternatives to determine if the potential impacts would be greater, lesser, or the same. The no action alternative serves as the baseline for analysis and comparison.

The following resource values are not expected to be significantly impacted by either of the alternatives analyzed: soils, geology, minerals, water quality/quantity, flood plains, wetlands, visual resources, air quality, prime and unique farmlands, aquatic resources, timber, and range. These resources will not be analyzed further.

Other than minor uses of fuels for motor vehicles and other materials, there are no irreversible or irretrievable commitments of resources.

The proposed WS action would not be undertakings that could adversely affect historic sites or resources which are protected under the National Historic Preservation Act. (Appendix G)

4.1 ENVIRONMENTAL CONSEQUENCES FOR ISSUES ANALYZED IN DETAIL

Table 2 summarizes impacts of the alternatives for each issue considered in detail.

4.1.1 Effects on Target Deer Populations

4.1.1.1 Alternative 1 - No Action

The No Action Alternative consists of an integrated deer damage management program with no WS involvement. Shooting of deer would continue to be directed at deer population reduction. Deer hunter harvest trend data indicates that deer populations have been stable statewide and in the tri-county area over the past 7 years. (Table 1) The population goals of the Commission is to reduce the deer population within the park to 8 to 10 deer per square mile. By reducing deer numbers to this level, deer would not be eliminated from the State, region or local area and deer would continue to exist within the park and surrounding areas, although at lower densities. The PGC has concurred that the local, regional and statewide deer population would not be negatively impacted by reducing and maintaining the deer herd at the goal population level of 8 to 10 deer per square mile. (Appendix H)

White-tailed deer do not exhibit self-regulatory mechanisms whereby compensatory reproduction (increased production of fawns) occurs following population reductions (accomplished through shooting, hunting, or other mechanisms) when the free-ranging population is well below

biological carrying capacity (Keith 1974, Wagner et al. 1995). The Fairmount park deer population is well below biological carrying capacity and therefore the removal of deer would not likely result in compensatory reproduction in remaining does (White Buffalo, Inc. 1999). Alternately, compensatory reproduction has occurred elsewhere/in the past where fenced deer populations occurred at or above biological carrying capacity, and where population control measures were taken. This did occur at the Earl Naval Ammunition Depot (Monmouth Co., NJ) in the early 1970's. At this site it is important to note that even though reproductive rate did increase following deer removals, the overall population size was greatly reduced (R. Lund pers. comm.). In sum, compensatory reproduction is not expected to follow the proposed removal of deer, since the deer population is well below biological carrying capacity.

4.1.1.2 Alternative 2 - Proposed Action

The Proposed Action consists of WS involvement in shooting deer pursuant to PGC issued permits to kill wild deer, as one part of the overall integrated deer damage management program. Impacts of this alternative on the local, regional and statewide deer populations would be similar to the No Action Alternative.

4.1.2 Effects on Nontarget Species Populations, including Threatened and Endangered Species.

4.1.2.1 Alternative 1 - No Action

Under the No Action Alternative, the Commission's current deer management program to reduce deer damage would continue with the take of nontarget species expected to be minimal or nonexistent. Other wildlife populations would not be negatively affected, except for the occasional scaring effect from the sound of gunshots. In these cases, birds and other mammals may temporarily leave the immediate vicinity of shooting, but would most likely return after conclusion of the action. To date, no nontarget animals have been killed by entities engaged in deer control activities at properties administered by the Commission (shooting pursuant to permit). The Pennsylvania Game Commission, Environmental Review Coordinator, Division of Environmental Planning Habitat Protection has determined that shooting deer to reduce deer density in the proposed project area would not adversely affect any state-listed T&E species or their habitats and ecosystems (Appendix D). The USFWS has provided WS with a list of Federal T&E species in PA by county. (Appendix E) WS has determined that the no action alternative (current program) would have no affect on any Federal T&E species.

4.1.2.2 Alternative 2 - Proposed Action

Under the Proposed Action, the take of nontarget species by WS is expected to be minimal or nonexistent. The consequences of the proposed action on nontarget species are the same as those identified for the No Action Alternative.

Regarding T&E species, the Pennsylvania Game Commission, Environmental Review Coordinator, Division of Environmental Planning Habitat Protection, has stated that "no significant adverse impacts to wildlife or wildlife habitats are expected to occur in relation to the proposed activity". (Appendix D). The USFWS has provided WS with a list of Federal T&E species in PA by county (Appendix E). WS has determined that the proposed action would have no adverse affect on any Federal T&E species.

In sum, participation of WS in the Commission's Deer Management Program would not increase the already minimal/nonexistent impacts of the program on nontarget species, and would have no negative effect on State or Federal T&E species.

4.1.3 Effects on Human Health and Safety

4.1.3.1 Alternative 1 - No Action

The effects on human health and safety of the Commission's use/application of fencing, repellents, and modification of planting practices would be minimal, as long as repellents are applied according to label instructions, fencing is installed properly and is maintained and repaired, and are used according to standard safety guidelines. The public is more concerned about potential effects of the use of firearms on human health and safety, through accidentally shooting a person or through increased traffic hazards of deer that may be frightened into roadways. There have been no instances of entities accidentally shooting a person during deer control activities on park properties. The extent to which deer shooting activities affect traffic safety is difficult to determine, but overall, shooting deer is expected to have a net positive impact on traffic safety by reducing the deer density in areas where shooting occurs. There is minimal risk of human injury from use of firearms to shoot deer.

4.1.3.2 Alternative 2 - Proposed Action

The consequences of the proposed action on human health and safety are very similar to those identified for the No Action Alternative. The addition of WS biologists shooting deer as a supplement to the deer damage management program would not increase the program's effects on

human health and safety. In some cases, WS involvement may reduce the already minimal potential effects on safety, since WS biologists are experienced and specifically trained to handle and discharge firearms in a safe and responsible manner. Shooting from elevated positions increases safety by resulting in a downward trajectory of the projectile, thereby minimizing stray bullets/shells. WS works in compliance with Federal and State laws, regulations, and policies regarding conduct of wildlife damage work, use and transport of firearms, etc. WS biologists would follow mitigation and SOP's to reduce or eliminate any potential negative impacts. WS employees who carry firearms as a condition of employment, are required to sign a form certifying that they meet the criteria as stated in the *Lautenberg Amendment* which prohibits firearm possession by anyone who has been convicted of a crime of domestic violence. A moderate positive effect from reduction in deer-vehicle collisions is expected. There is no probable risk of human health or safety effects from methods used by WS.

4.1.4 Effects on Aesthetics

4.1.4.1 Alternative 1 - No Action

Since the No Action alternative would not cause deer to be extirpated from the local area or the park system, most people's aesthetic appreciation of deer would not be affected. Deer would continue to occur, although possibly at lower densities, and people would continue to gain enjoyment from viewing deer and from the knowledge of their existence nearby. People who may have formed affectionate bonds with individual deer would be affected (emotional impact) if these individual deer are shot. However, this impact may be reduced by the continued existence of other deer in the area. Deer control activities are typically conducted away from public view, at safe distances from roadways and homes or other buildings primarily from dusk to dawn. This improves safety, and also accommodates aesthetic values of members of the public who do not want to observe shot deer.

4.1.4.2 Alternative 2 - Proposed Action

Consequences of the Proposed Action on aesthetics would be similar to those described for the No Action alternative. WS shooting of deer would be conducted primarily from dusk-dawn, to best accomplish program objectives. A secondary benefit of this would be a minimization of aesthetic impacts on members of the public who do not want to observe shot deer. WS shooting of deer could negatively effect individuals that have formed affectionate bonds with individual deer, if these deer were shot.

4.1.5 Humaneness and Animal Welfare Concerns

4.1.5.1 Alternative 1 - No Action

Under the No Action alternative, deer would be shot by an entity contracted by the Commission. Shooting is considered to be a humane method of killing deer if it results in immediate death. Individual people have varying values and beliefs about the need to maximize humaneness. Some people may consider any lethal method to be inhumane.

4.1.5.2 Alternative 2 - Proposed Action

Under the Proposed Action, deer would be shot by WS biologists. WS would strive for quick kill head/neck shots which would result in immediate death and humaneness whenever possible. Impacts regarding humaneness of shooting deer under this alternative are similar to those described for the No Action Alternative.

4.2 CUMULATIVE IMPACTS

No significant cumulative environmental impacts are expected for either of the two alternatives. Under the Proposed Action, shooting of deer by WS would contribute towards the Commission's deer management objective of population reduction in the park system. Deer would continue to occur in all parts of the park, although at lower densities in certain areas. In areas where shooting of deer by WS has achieved the Commission's population objective, WS would not shoot additional deer. No risk to public safety is expected, since only trained and experienced wildlife professionals would conduct shooting, and precautionary procedures would have been established to virtually eliminate the chance of a stray projectile from endangering members of the public. Although some persons will likely remain opposed to the lethal removal of deer, the analysis in this EA indicates that WS shooting of deer will not result in significant cumulative adverse impacts on the quality of the human environment.

5.0 CHAPTER 5: LIST OF PREPARERS AND PERSONS CONSULTED

5.1 LIST OF PREPARERS AND REVIEWERS

Jason Suckow, District Supervisor, USDA APHIS Wildlife Services, Summerdale, PA

Janet L. Bucknall, State Director (NJ/PA), USDA APHIS Wildlife Services, Pittstown, NJ

David S. Reinhold, Environmental Coordinator, USDA APHIS Wildlife Services, Raleigh, NC

5.2 LIST OF PERSONS CONSULTED

- Barry A. Bessler, Chief of Staff, Fairmount Park Commission, Philadelphia, PA
- Calvin DuBrock, Director, Pennsylvania Game Commission, Bureau of Wildlife Management, Harrisburg, PA
- Tammy Hawk, Administrative Assistant, Pennsylvania Game Commission, Bureau of Wildlife Management, Harrisburg, PA
- Anthony Ross, Environmental Review Coordinator, Pennsylvania Game Commission, Bureau of Land Management, Harrisburg, PA
- Chris Klinedinst Firestone, Plant Program Manager, Pennsylvania Department of Conservation and Natural Resources, Bureau of Forestry, Harrisburg, PA
- Theresa Stuhlman, Historic Preservation Officer, Fairmount Park Commission, Philadelphia, PA
- Teresa Howes, Legislative Public Affairs, USDA, Washington, DC
- Alice Young, Philadelphia County Health Department, Philadelphia, PA

Table 1. White-tailed deer harvest.

Montgomery County Deer Harvest average 2297

Year	Doe	Buck	Total
1993	638	1104	1742
1994	511	1826	2373
1995	616	1740	2356
1996	532	1681	2213
1997	735	1613	2348
1998	754	1516	2270
1999	893	1887	2780

Philadelphia County Deer Harvest average 139

Year	Doe	Buck	Total
1993	36	101	137
1994	22	73	95
1995	39	51	90
1996	45	120	165
1997	33	141	174
1998	53	116	169
1999	34	110	144

Delaware County Deer Harvest average 1403

Year	Doe	Buck	Total
1993	284	890	1124
1994	284	987	1271
1995	347	1171	1518
1996	401	1223	1624
1997	294	1183	1477
1998	339	1150	1489
1999	333	983	1316

Pennsylvania State Harvest average 385,473

Year	Total
1993	408,557
1994	395,081
1995	430,583
1996	350,997
1997	397,016
1998	337,489
1999	378,592

Table 2. Comparison of consequences/impacts for various issues under the No Action/Current Program and Proposed Action alternatives.

Issue	No Action/Current Program	Proposed Action (WS Shoots Deer)
Effects on Target Deer Populations	Deer densities would be reduced in the park but not eliminated from the area. Overall positive effect on the Fairmount Park Commission goal of deer population reduction.	Results would be similiar to the No Action Alternative. However, shooting of deer by WS biologists may have a greater success at achieving or get closer to PA Game Commission-established deer population goals.
Effects on Nontarget Species Populations, Including T&E	Minimal or nonexisent negative effect on nontarget species. Deer removal may indirectly positively affect some threatened and endangered plant species and wildlife communities that depend on understory vegetation	Results would be similiar to the No Action Alternative.
Effects on Human Health and Safety	Moderate positive effect from reduced deer-vehicle collisions around the Park and reduced risk of disease transmission. No probable risk of human health or safety effects from methods and techniques employed	Results would be similiar to the No Action Alternative. However WS involvement may reduce the already minimal potential effects on safety from methods and techniques employed.
Effects on Aesthetics	Deer would continue to occur within the Park, however at lower levels. Some people may have affectionate bonds with individual deer, and they may be negatively effected if these deer are killed.	Results would be similiar to the No Action Alternative. Deer killed by WS will be shot and handled professionally and discretely, to minimize impacts on aesthetics.
Humaneness and Animal Welfare Concerns	Shooting of deer is humane by most, but others may consider any method of killing deer to be inhumane.	Result would be similiar to the No Action Alternative. Impacts may be lessened by the use of WS biologists since WS biologists are specifically trained and accountable for humane treatment of wildlife.

APPENDIX A

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APPENDIX B
Letter Request From Fairmount Park Commission

FAIRMOUNT
P · A · R · K
COMMISSION

Memorial Hall, West Park
Post Office Box 21601
Philadelphia, PA 19131-0901

October 24, 2000

Mr. Jason Suckow
USDA-Wildlife Services
P.O. Box 459
1st and Water Streets
Summerdale, PA 17093

Dear Mr. Suckow:

I appreciate the opportunity I had yesterday to meet with you and other USDA representatives to discuss the deer overpopulation problems in the Wissahickon and Pennypack valleys.

At the present time, we are preparing our application to the Pennsylvania Game Commission for permission to conduct deer population control activities in winter 2001. We hope to have a permit in place by early January that would allow us to remove deer using professional wildlife control agents.

Upon receipt of this permission, we would like to engage the USDA to provide wildlife control services on Fairmount Park Commission properties. As we have discussed and you have seen, the deer population problems that we have in our wilderness park areas in Philadelphia are significant and we look forward to working with your organization to resolve this important and challenging issue.

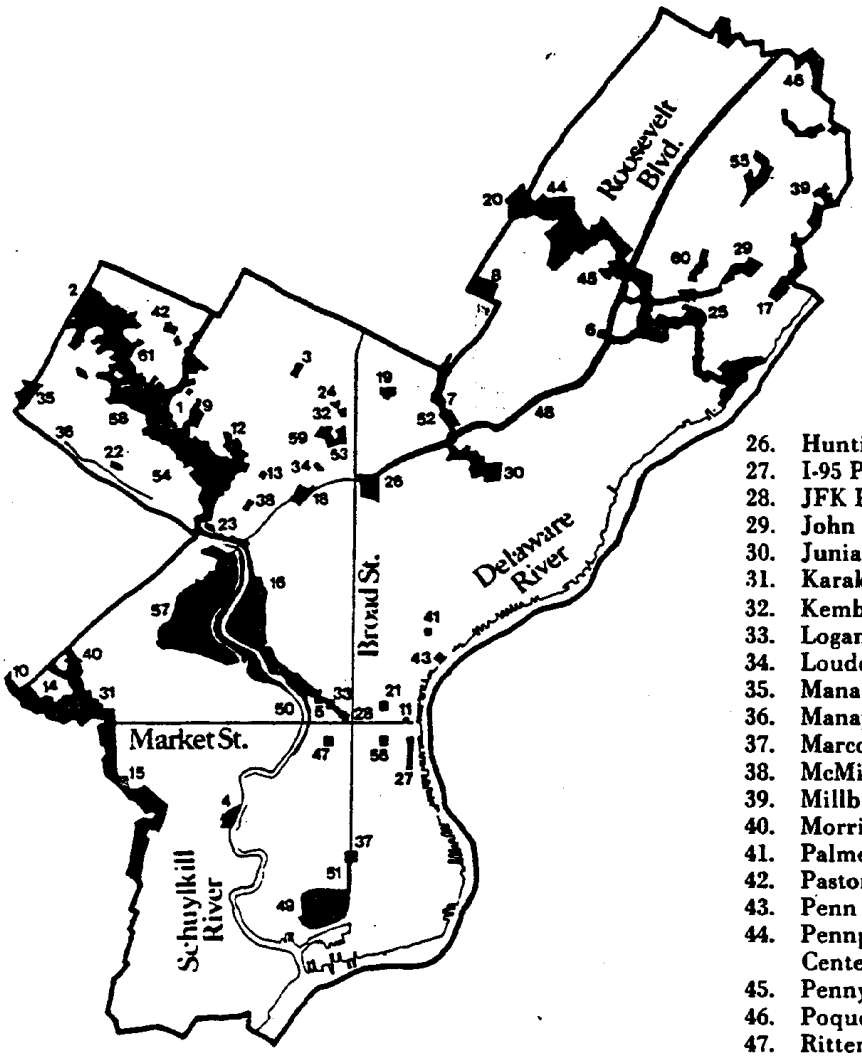
Please contact me at your earliest convenience to let me know what further information you may require to initiate your environmental review process pursuant to the National Environmental Policy Act(NEPA), so that we may move forward.

Sincerely,

Barry A. Bessler
Chief of Staff

APPENDIX C
Map of Fairmount Park's Resources

Fairmount Park's Resources



Lands under the Jurisdiction of Fairmount Park

1. Allen's Lane, 1945 (Wissahickon)
2. Andorra Natural Area, 1978-79 (Wissahickon)
3. Awbury Park, 1920, 20 acres
4. Bartram's Garden, 1891, 27 acres
5. Benjamin Franklin Parkway, 1917-1928, 60 acres
6. Bradford Park, 1980, 8 acres
7. Brookwood Park, 1939, 21 acres
8. Burholme Park, 1915, 69 acres
9. Carpenter Woods, 1916, 37 acres
10. Carroll Park, 1928, 44 acres
11. Christ Church Park, 1928, 1 acre
12. Clifford Park, 1870 ca, 15 acres
13. Cloverly Park, 1913, 2 acres
14. Cobb's Creek Golf Course, 1920, ca. (Cobb's Creek)
15. Cobb's Creek Park, 1904-1928, 786 acres
16. East Park, 1844, 1050 acres
17. Eden Hall Park, 1976, 61 acres
18. Fernhill Park, 1951-17, 52 acres
19. Fisher Park, 1909, 23 acres
20. Fox Chase Farm, 1975-79, 88 acres
21. Franklin Square, 1915, 6 acres
22. Germany Hill, 1975, 18 acres
23. Gustine Lake, 1870 ca. (Wissahickon)
24. Harper's Hollow Park, 1917-22, 3 acres
25. Holme Crispin Park, 1925 (Pennypack)
26. Hunting Park, 1854, 87 acres
27. I-95 Park, 1976, 7 acres
28. JFK Plaza, 1917-1928, 2 acres
29. John Byrne Golf Course, 1972, 85 acres
30. Juniata Golf Course, 1915, 18 acres
31. Karakung Golf Course, 1920 ca. (Cobb's Creek)
32. Kemble Park, 1922, 6 acres
33. Logan Square, 1915, 12 acres
34. Loudoun Park, 1939, 7 acres
35. Manatawna Farm, 1983, 76 acres
36. Manayunk Canal Towpath, 1979, 120 acres
37. Marconi Plaza, 19 acres
38. McMichael Park, 1929, 6 acres
39. Millbrook, 1978, 13 acres
40. Morris Park, 1911-29, 123 acres
41. Palmer Park, 1915, 1 acre
42. Pastorius Park, 1915, 16 acres
43. Penn Treaty Park, 1894, 2 acres
44. Pennpack Environmental Center, 1978 (Pennypack)
45. Pennypack Park, 1905-29, 1618 acres
46. Poquessing Creek, 1960-70, 123 acres
47. Rittenhouse Square, 1915, 6 acres
48. Roosevelt Boulevard, 1916, 250 acres
49. Roosevelt Park and Golf Course, 1922-24, 330 acres
50. Schuyllkill River Park, 1966, 6 acres
51. Southern Boulevard, 1923 ca., 23 acres
52. Tacony Creek Park, 1915, 255 acres
53. Wakefield Park, 1919, 20 acres
54. Walnut Lane Golf Course, 1870 ca., 95 acres
55. Walton Run, 1970 ca. (Poquessing)
56. Washington Square, 1915, 6 acres
57. West Park, 1866, 1276 acres
58. Wissahickon Valley, 1867, 1841 acres
59. Wister's Woods Park, 1911, 49 acres
60. Wooden Bridge Run, 1950, 31 acres
61. Woodward Pines, 1930-37, 1 acre

Credits

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APPENDIX D
Correspondence With Pennsylvania Game Commission Regarding T&E Species

COMMONWEALTH OF PENNSYLVANIA

PENNSYLVANIA GAME COMMISSION

2001 ELMERTON AVENUE
HARRISBURG, PA 17110-9797

ADMINISTRATIVE BUREAUS:

ADMINISTRATION 717-787-5670
AUTOMOTIVE AND PROCUREMENT DIVISION 717-787-6594
LICENSE DIVISION 717-787-2084
PERSONNEL DIVISION 717-787-7836
WILDLIFE MANAGEMENT 717-787-5529
INFORMATION & EDUCATION 717-787-6286
LAW ENFORCEMENT 717-787-5740
LAND MANAGEMENT 717-787-6818
REAL ESTATE DIVISION 717-787-6568
MANAGEMENT INFORMATION SYSTEMS 717-787-4076

November 13, 2000

Mr. Jason Suckow
USDA
APHIS Wildlife Services
P. O. Box 459
Summerdale, PA 17093

In re: Deer Removal
Pennypack and Wissahickon Watershed Areas
Delaware, Montgomery, and Philadelphia Counties, PA

Dear Mr. Suckow:

This is in response to our phone conversation on November 9, 2000, requesting our review and comments as related to this proposal.

Our office review shows no significant adverse impacts to wildlife or wildlife habitats are expected to occur in relation to the proposed activity. Therefore, we have no objections to the proposal. However, should plans change or if additional information becomes available concerning endangered or threatened birds or mammals or potential impacts to critical or unique wildlife habitat such as wetlands, this determination may be reconsidered.

If you have any questions, please contact me at (717) 783-5957.

Very truly yours,

Anthony S. Ross
Environmental Review Coordinator
Division of Environmental
Planning and Habitat Protection
Bureau of Land Management

APPENDIX E
List of Federal T&E Species

FEDERALLY LISTED, PROPOSED AND CANDIDATE SPECIES (in Pennsylvania)

COMMON NAME	SCIENTIFIC NAME	STATUS*	DISTRIBUTION
FISHES			
Shortnose sturgeon**	*Acipenser brevirostrum*	E	Delaware River & other Atlantic coastal waters
REPTILES & AMPHIBIANS			
Bog turtle	*Clemmys muhlenbergii*	T	Current - Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton and York Counties. Historic - Crawford, Mercer and Philadelphia Counties
Eastern massasauga rattlesnake	*Sistrurus catenatus catenatus*	C	Current - Butler, Crawford, Mercer and Venango Counties. Historic - Allegheny and Lawrence Counties.
BIRDS			
Bald eagle	*Haliaeetus leucocephalus*	T	Suitable habitats across the state. Recent nesting in Butler, Centre, Chester, Crawford, Dauphin, Erie, Forest, Huntingdon, Lancaster, Mercer, Northumberland, Pike, Tioga, Venango, Warren and York Co. Wintering concentrations occur near ice-free sections of rivers, lakes and reservoirs, including the Delaware River.
Piping plover	*Charadrius melodus*	E	Presque Isle (Erie County). Migratory. No nesting in Pennsylvania since mid-1950s.
MAMMALS			
Indiana bat	*Myotis sodalis*	E	Winter hibernacula: Armstrong, Blair, Lawrence, Luzerne, Mifflin and Somerset Co.
MOLLUSKS			
Clubshell mussel	*Pleurobema clava*	E	French Creek and Allegheny River watersheds; Clarion, Crawford, Erie, Forest, Mercer, Venango and Warren Counties
Northern riffleshell	*Epioblasma torulosa rangiana*	E	French Creek and Allegheny River watersheds; Clarion, Crawford, Erie, Forest, Mercer, Venango and Warren Counties
PLANTS			
Northeastern bulrush	*Scirpus ancistrochaetus*	E	Current - Adams, Bedford, Blair, Carbon, Centre, Clinton, Cumberland, Dauphin, Franklin, Huntingdon, Lackawanna, Lehigh, Lycoming, Mifflin, Monroe, Perry, Snyder and Union Counties. Historic - Northampton County
Small-whorled pogonia	*Isotria medeoloides*	T	Current - Centre and Venango Counties. Historic - Berks, Chester, Greene, Monroe, Montgomery and Philadelphia Counties

* *E = Endangered, T = Threatened, PE = Proposed Endangered, PT = Proposed Threatened, C = Candidate* *Revised 3/20/00*

** *Shortnose sturgeon is under the jurisdiction of the National Marine Fisheries Service*

U.S. FISH AND WILDLIFE SERVICE
315 SOUTH ALLEN ST., SUITE 322, STATE COLLEGE, PA 16801

APPENDIX F
List of State T&E Species

Pennsylvania Department of Conservation and Natural Resources

Rachel Carson State Office Building
P.O. Box 8552
Harrisburg, PA 17105-8552
April 18, 2000

Bureau of Forestry

717-787-3444
Fax 717-783-5109

Jason Suckow
USDA Wildlife Services
PO Box 459
Summerdale PA 17093

Dear Jason:

Enclosed are the lists of species of special concern for Philadelphia, Montgomery and Delaware counties. The state and federal status for the species can be found on the PNDI web site at http://www.dcnr.state.pa.us/forestry. From the Forestry page go to Pennsylvania Natural Diversity Inventory and select the plant, vertebrate or invertebrate lists. These are the complete lists of species of special concern for the whole state. If you have any questions at all regarding the lists, please feel free to call.

Sincerely,

Chris Klinedinst Firestone

Chris Klinedinst Firestone
Plant Program Manager
Bureau of Forestry

Enclosures

Philadelphia

Query Results

The following Species of Special Concern satisfy the parameters selected:

- County: PAPHIL

1. ALASMIDONTA HETERODON - DWARF WEDGEMUSSEL
2. ALASMIDONTA VARICOSA - BROOK FLOATER
3. AMARANTHUS CANNABINUS - WATERHEMP RAGWEED
4. AMMANNIA COCCINEA - SCARLET AMMANNIA
5. ASIO FLAMMEUS - SHORT-EARED OWL
6. ASTER SPECTABILIS - LOW SHOWY ASTER
7. ATRYTONE AROGOS AROGOS - AROGOS SKIPPER
8. BACCHARIS HALIMIFOLIA - EASTERN BACCHARIS
9. BIDENS BIDENTOIDES - SWAMP BEGGAR-TICKS
10. BOTAURUS LENTIGINOSUS - AMERICAN BITTERN
11. CASMERODIUS ALBUS - GREAT EGRET
12. CHRYSOPSIS MARIANA - MARYLAND GOLDEN-ASTER
13. CIRCUS CYANEUS - NORTHERN HARRIER
14. CISTOTHORUS PALUSTRIS - MARSH WREN
15. CYPERUS DIANDRUS - UMBRELLA FLATSEDGE
16. DATANA RANAECEPS - A HAND-MAID MOTH
17. ECHINOCHLOA WALTERI - WALTER'S BARNYARD-GRASS
18. ELATINE MINIMA - SMALL WATERWORT
19. ELEOCHARIS OBTUSA VAR PEASEI - WRIGHTS SPIKE RUSH
20. ELEPHANTOPUS CAROLINIANUS - ELEPHANT'S FOOT
21. EPILOBIUM STRICTUM - DOWNY WILLOW-HERB
22. EUPATORIUM ROTUNDIFOLIUM - A EUPATORIUM
23. EUPHYES CONSPICUUS - BLACK DASH
24. FALCO PEREGRINUS - PEREGRINE FALCON
25. FRESHWATER INTERTIDAL MUDFLAT - FRESHWATER INTERTIDAL MUDFLAT
26. GASTEROSTEUS ACULEATUS - THREESPINE STICKLEBACK
27. GLYCERIA BOREALIS - SMALL-FLOATING MANNA-GRASS
28. HEMILEUCA MAIA - BARRENS BUCKMOTH
29. HYPERICUM DENSIFLORUM - BUSHY ST. JOHN'S-WORT
30. IXOBRYCHUS EXILIS - LEAST BITTERN
31. JUNCUS DICHOTOMUS - FORKED RUSH
32. KINOSTERNON SUBRUBRUM - EASTERN MUD TURTLE
33. LEPTOCHLOA FASCICULARIS VAR MARITIMA - LONG-AWNED SPRANGLETOP
34. LYCAENA HYLLUS - BRONZE COPPER
35. LYCOPUS RUBELLUS - BUGLEWEED
36. LYTHRUM ALATUM - WINGED-LOOSESTRIFE
37. MELANTHIUM VIRGINICUM - VIRGINIA BUNCHFLOWER
38. MICRANTHEMUM MICRANTHEMOIDES - NUTTALL'S MUD-FLOWER
39. NYCTICORAX NYCTICORAX - BLACK-CROWNED NIGHT-HERON
40. OXYPOLIS RIGIDIOR - STIFF COWBANE
41. PANICUM SCOPARIUM - VELVETY PANIC-GRASS
42. PAPILIO CRESPHONTES - GIANT SWALLOWTAIL
43. PHYCIODES BATESII - TAWNY CRESCENT
44. POA AUTUMNALIS - AUTUMN BLUEGRASS
45. POLYGALA CRUCIATA - CROSS-LEAVED MILKWORT
46. PSEUDEMYS RUBRIVENTRIS - REDBELLY TURTLE
47. PYCNANTHEMUM VERTICILLATUM VAR PILOSUM - HAIRY MOUNTAIN-MINT

48. QUERCUS FALCATA - SOUTHERN RED OAK
49. RALLUS ELEGANS - KING RAIL
50. RALLUS LIMICOLA - VIRGINIA RAIL
51. SAGITTARIA SUBULATA - SUBULATE ARROWHEAD
52. TRADESCANTIA OHIENSIS - OHIO SPIDERWORT
53. TRIOSTEUM ANGUSTIFOLIUM - HORSE-GENTIAN
54. TYTO ALBA - BARN-OWL
55. VERNONIA GLAUCA - TAWNY IRONWEED
56. VIBURNUM TRILOBUM - HIGHBUSH-CRANBERRY
57. WOODWARDIA AREOLATA - NETTED CHAINFERN
58. ZIZANIA AQUATICA - INDIAN WILD RICE

PNDI is a site specific information system, which describes significant natural resources of Pennsylvania. This system includes data descriptive of plant and animal species of special concern, exemplary natural communities and unique geological features. PNDI is a cooperative project of the Department of Conservation and Natural Resources, The Nature Conservancy and the Western Pennsylvania Conservancy. This response represents the most up-to-date summary of the PNDI data files and is valid for 1 year. An absence of recorded information does not necessarily imply actual conditions on-site. A field site survey may reveal previously unreported populations.

New Query | PNDI Search Welcome | PNDI Search Home

Delaware

Query Results

The following Species of Special Concern satisfy the parameters selected:

- County: PADELA

1. A EUPATORIUM - EUPATORIUM ROTUNDIFOLIUM
2. A HAND-MAID MOTH - DATANA RANAECEPS
3. ANNUAL FIMBRY - FIMBRISTYLIS ANNUA
4. AUTUMN BLUEGRASS - POA AUTUMNALIS
5. BALSAM POPLAR - POPULUS BALSAMIFERA
6. BANDED SUNFISH - ENNEACANTHUS OBESUS
7. BARN-OWL - TYTO ALBA
8. BICKNELL'S HOARY ROCKROSE - HELIANTHEMUM BICKNELLII
9. BLACK DASH - EUPHYES CONSPICUUS
10. BLACK-CROWNED NIGHT-HERON - NYCTICORAX NYCTICORAX
11. BOG TURTLE - CLEMMYS MUHLENBERGII
12. BRONZE COPPER - LYCAENA HYLLUS
13. CLINTON'S WOOD FERN - DRYOPTERIS CLINTONIANA
14. COASTAL PLAIN FOREST - COASTAL PLAIN FOREST
15. COLIC-ROOT - ALETRIS FARINOSA
16. CRANEFLY ORCHID - TIPULARIA DISCOLOR
17. CROSS-LEAVED MILKWORT - POLYGALA CRUCIATA
18. DOTTED SKIPPER - HESPERIA ATTALUS SLOSSONAE
19. DOWNY LOBELIA - LOBELIA PUBERULA
20. EASTERN BACCHARIS - BACCHARIS HALIMIFOLIA
21. EASTERN JOINTWEED - POLYGONELLA ARTICULATA
22. EASTERN MUD TURTLE - KINOSTERNON SUBRUBRUM
23. EASTERN SERPENTINE BARRENS - EASTERN SERPENTINE BARRENS
24. ELEPHANT'S FOOT - ELEPHANTOPUS CAROLINIANUS
25. ELLISIA - ELLISIA NYCTELEA
26. EROSIONAL REMNANT - EROSIONAL REMNANT
27. FEW FLOWERED NUTRUSH - SCLERIA PAUCIFLORA
28. FORKED RUSH - JUNCUS DICHOTOMUS
29. FRANCK'S SPHINX MOTH - SPHINX FRANCKII
30. FRESHWATER INTERTIDAL MARSH - FRESHWATER INTERTIDAL MARSH
31. FRESHWATER INTERTIDAL MUDFLAT - FRESHWATER INTERTIDAL MUDFLAT
32. FROSTED ELFIN - INCISALIA IRUS
33. GIANT SWALLOWTAIL - PAPILIO CRESPHONTES
34. GRASS-LEAVED GOLDENROD - EUTHAMIA TENUIFOLIA
35. GRASS-LEAVED RUSH - JUNCUS BIFLORUS
36. GREAT EGRET - CASMERODIUS ALBUS
37. HEART-WINGED SORRELL - RUMEX HASTATULUS
38. INDIAN WILD RICE - ZIZANIA AQUATICA
39. LEAST BITTERN - IXOBRYCHUS EXILIS
40. LITTLE LADIES'-TRESSES - SPIRANTHES TUBEROSA
41. LITTLE-SPIKE SPIKE-RUSH - ELEOCHARIS PARVULA
42. LOG FERN - DRYOPTERIS CELSA
43. LONG-LOBED ARROW-HEAD - SAGITTARIA CALYCINA VAR SPONGIOSA
44. MARSH WREN - CISTOTHORUS PALUSTRIS
45. MEAD'S SEDGE - CAREX MEADII
46. MULTIFLOWERED MUD-PLANTAIN - HETERANTHERA MULTIFLORA
47. NARROW-LEAVED WHITE-TOPPED ASTER - ASTER SOLIDAGINEUS

Delaware

48. NARROWLEAF BUSHCLOVER - LESPEDEZA ANGUSTIFOLIA
49. NETTED CHAINFERN - WOODWARDIA AREOLATA
50. NORTHERN HARRIER - CIRCUS CYANEUS
51. NORTHERN METALMARK - CALEPHELIS BOREALIS
52. NUTTALLS' TICK-TREFOIL - DESMODIUM NUTTALLII
53. OHIO SPIDERWORT - TRADESCANTIA OHIENSIS
54. PEREGRINE FALCON - FALCO PEREGRINUS
55. PLAIN RAGWORT - SENECIO ANONYMUS
56. PUTTYROOT - APLECTRUM HYEMALE
57. REDBELLY TURTLE - PSEUDEMYS RUBRIVENTRIS
58. RIVER BULLRUSH - SCHOENOPLECTUS FLUVIATILIS
59. SEDGE WREN - CISTOTHORUS PLATENSIS
60. SERPENTINE ASTER - ASTER DEPAUPERATUS
61. SHORT-AWN FOXTAIL - ALOPECURUS AEQUALIS
62. SHORT-EARED OWL - ASIO FLAMMEUS
63. SHOWY SKULLCAP - SCUTELLARIA SERRATA
64. SHRUBBY CAMPHOR-WEED - PLUCHEA ODORATA
65. SMITH'S BULLRUSH - SCHOENOPLECTUS SMITHII
66. SMOOTH SWALLOW-WORT - CYNANCHUM LAEVE
67. SOAPWORT GENTIAN - GENTIANA SAPONARIA
68. SOUTHERN BOG CLUBMOSS - LYCOPODIELLA APPRESSA
69. SOUTHERN RED OAK - QUERCUS FALCATA
70. SPRING LADIES'-TRESSES - SPIRANTHES VERNALIS
71. STAGGER-BUSH - LYONIA MARIANA
72. STIFF COWBANE - OXYPOLIS RIGIDIOR
73. SUBULATE ARROWHEAD - SAGITTARIA SUBULATA
74. SWAMP BEGGAR-TICKS - BIDENS BIDENTOIDES
75. SWAMP DOG-HOBBLE - LEUCOTHOE RACEMOSA
76. TAWNY CRESCENT - PHYCIODES BATESII
77. TAWNY IRONWEED - VERNONIA GLAUCA
78. TORREY'S MOUNTAIN-MINT - PYCNANTHEMUM TORREI
79. UPLAND SANDPIPER - BARTRAMIA LONGICAUDA
80. VELVETY PANIC-GRASS - PANICUM SCOPARIUM
81. VIRGINIA RAIL - RALLUS LIMICOLA
82. WALTER'S BARNYARD-GRASS - ECHINOCHLOA WALTERI
83. WATERHEMP RAGWEED - AMARANTHUS CANNABINUS
84. WHITE MILKWEED - ASCLEPIAS VARIEGATA
85. WILD KIDNEY BEAN - PHASEOLUS POLYSTACHIOS
86. WILLOW OAK - QUERCUS PHELLOS
87. WRIGHTS SPIKE RUSH - ELEOCHARIS OBTUSA VAR PEASEI
88. YELLOW-CROWNED NIGHT-HERON - NYCTANASSA VIOLACEA

PNDI is a site specific information system, which describes significant natural resources of Pennsylvania. This system includes data descriptive of plant and animal species of special concern, exemplary natural communities and unique geological features. PNDI is a cooperative project of the Department of Conservation and Natural Resources, The Nature Conservancy and the Western Pennsylvania Conservancy. This response represents the most up-to-date summary of the PNDI data files and is valid for 1 year. An absence of recorded information does not necessarily imply actual conditions on-site. A field site survey may reveal previously unreported populations.

New Query | PNDI Search Welcome | PNDI Search Home

Montgomery

Query Results

The following Species of Special Concern satisfy the parameters selected:

- County: PAMONT

1. AGALINIS AURICULATA - EARED FALSE-FOXGLOVE
2. ALASMIDONTA VARICOSA - BROOK FLOATER
3. AMELANCHIER OBOVALIS - COASTAL JUNEBERRY
4. APLECTRUM HYEMALE - PUTTYROOT
5. ARABIS MISSOURIENSIS - MISSOURI ROCK-CRESS
6. BACCHARIS HALIMIFOLIA - EASTERN BACCHARIS
7. BARTRAMIA LONGICAUDA - UPLAND SANDPIPER
8. BOULDER BELTS - BOULDER BELTS
9. CAECIDOTEA PRICEI - PRICE'S CAVE ISOPOD
10. CALEPHELIS BOREALIS - NORTHERN METALMARK
11. CAREX BUXBAUMII - BROWN SEDGE
12. CAREX HAYDENII - CLOUD SEDGE
13. CAREX MEADII - MEAD'S SEDGE
14. CAREX STERILIS - STERILE SEDGE
15. CASTILLEJA COCCINEA - SCARLET INDIAN-PAINTBRUSH
16. CLEMMYS MUHLENBERGII - BOG TURTLE
17. CORALLORHIZA WISTERIANA - SPRING CORAL-ROOT
18. CYPERUS REFRACTUS - REFLEXED FLATSEDGE
19. DESMODIUM LAEVIGATUM - SMOOTH TICK-TREFOIL
20. EUPATORIUM ALBUM - WHITE THOROUGHWORT
21. EUPHYES CONSPICUUS - BLACK DASH
22. GENTIANA SAPONARIA - SOAPWORT GENTIAN
23. GENTIANA VILLOSA - STRIPED GENTIAN
24. GLYCERIA OBTUSA - BLUNT MANNA-GRASS
25. HETERODON PLATIRHINOS - EASTERN HOGNOSE SNAKE
26. ILEX GLABRA - INK-BERRY
27. INCISALIA IRUS - FROSTED ELFIN
28. INCISALIA POLIA - HOARY ELFIN
29. IRIS PRISMATICA - SLENDER BLUE IRIS
30. JUNCUS BIFLORUS - GRASS-LEAVED RUSH
31. JUNCUS FILIFORMIS - THREAD RUSH
32. LATHYRUS PALUSTRIS - VETCHLING
33. LEMNA PERPUSILLA - MINUTE DUCKWEED
34. LYCAENA HYLLUS - BRONZE COPPER
35. LYONIA MARIANA - STAGGER-BUSH
36. MAGNOLIA VIRGINIANA - SWEET BAY MAGNOLIA
37. MESIC CENTRAL FOREST - MESIC CENTRAL FOREST
38. NAJAS GRACILLIMA - BUSHY NAIAD
39. NUPHAR LUTEA SSP PUMILA - YELLOW COWLILY
40. ONOSMODIUM VIRGINIANUM - VIRGINIA FALSE-GROMWELL
41. PANICUM LONGIFOLIUM - LONG-LEAF PANIC-GRASS
42. PANICUM LUCIDUM - SHINING PANIC-GRASS
43. PAPILIO CRESPHONTES - GIANT SWALLOWTAIL
44. PHASEOLUS POLYSTACHIOS - WILD KIDNEY BEAN
45. PHLOX PILOSA - DOWNY PHLOX
46. PHYCIODES BATESII - TAWNY CRESCENT
47. POTAMOGETON ILLINOENSIS - ILLINOIS PONDWEED

48. PROTONOTARIA CITREA - PROTHONOTARY WARBLER
49. PSEUDEMYS RUBRIVENTRIS - REDBELLY TURTLE
50. QUERCUS FALCATA - SOUTHERN RED OAK
51. RALLUS LIMICOLA - VIRGINIA RAIL
52. RANUNCULUS FASCICULARIS - TUFTED BUTTERCUP
53. ROTALA RAMOSIOR - TOOTH-CUP
54. SOLIDAGO RIGIDA - HARD-LEAVED GOLDENROD
55. SOLIDAGO SPECIOSA VAR SPECIOSA - SHOWY GOLDENROD
56. SPEYERIA IDALIA - REGAL FRITILLARY
57. STYGOBROMUS PIZZINII - PIZZINI'S CAVE AMPHIPOD
58. TIPULARIA DISCOLOR - CRANEFLY ORCHID
59. VERNONIA GLAUCA - TAWNY IRONWEED
60. VERTEBRATE FOSSIL ANIMALS - VERTEBRATE FOSSIL ANIMALS
61. WOODWARDIA AREOLATA - NETTED CHAINFERN
62. XYLOTYPE CAPAX - BROAD SALLOW MOTH

PNDI is a site specific information system, which describes significant natural resources of Pennsylvania. This system includes data descriptive of plant and animal species of special concern, exemplary natural communities and unique geological features. PNDI is a cooperative project of the Department of Conservation and Natural Resources, The Nature Conservancy and the Western Pennsylvania Conservancy. This response represents the most up-to-date summary of the PNDI data files and is valid for 1 year. An absence of recorded information does not necessarily imply actual conditions on-site. A field site survey may reveal previously unreported populations.

New Query | PNDI Search Welcome | PNDI Search Home

APPENDIX G
Correspondence with Historic Preservation Officer, Fairmount Park Commission

FAIRMOUNT
P · A · R · K
COMMISSION

West Park, Memorial Hall
Post Office Box 21601
Philadelphia, PA 19131-0901

November 17, 2000

Mr. Jason Suckow
USDA Wildlife Services
P.O. Box 349
Summerdale, PA 17913

Re: Wissahickon Valley Park

Dear Mr. Suckow:

As you are aware, the Fairmount Park Commission is engaged in obtaining the necessary approvals to cull the deer population located in theWissahickon Valley Park, a National Historic District. The Wissahickon is also listed on the National Registry of Natural History Landmarks designed to recognize and encourage the preservation and protection of significant example of America's natural heritage.

The Fairmount Park Commission, having studied the deer issue for a number of years, believes that the over population of deer in the valley is threatening this unique urban natural resource. This letter is to certify that, per the National Historic Preservation Act of 1966, the USDA Wildlife Services' role in decreasing the deer population in the Wissahickon **will not result** in a change in character or use of the historic and cultural resources contained with this important National Historic District. On the contrary, the deer removal process, as conducted by the USDA Wildlife Services, will better preserve and enhance this historic environment for future generations.

Very truly yours,

Theresa R. Stuhlman
Historic Preservation Officer

Cc: Barry Bessler, Chief of Staff

APPENDIX H

Correspondence with the Pennsylvania Game Commission Regarding the Commission's deer management Objective

COMMONWEALTH OF PENNSYLVANIA

PENNSYLVANIA GAME COMMISSION

2001 ELMERTON AVENUE
HARRISBURG, PA 17110-9797

ADMINISTRATIVE BUREAUS:

ADMINISTRATION	717-787-5670
AUTOMOTIVE AND PROCUREMENT DIVISION	717-787-6594
LICENSE DIVISION	717-787-2084
PERSONNEL DIVISION	717-787-7836
WILDLIFE MANAGEMENT	717-787-5529
INFORMATION & EDUCATION	717-787-6286
LAW ENFORCEMENT	717-787-5740
LAND MANAGEMENT	717-787-6818
REAL ESTATE DIVISION	717-787-6568
MANAGEMENT INFORMATION SYSTEMS	717-787-4076

November 29, 2000

Jason Suckow
USDA/Wildlife Services
P.O. Box 459
1st & Water Streets
Summerdale, PA 17093

Dear Jason:

The proposed program of reducing the deer population in the Fairmount Park System in Philadelphia to 8 to 10 deer per square mile will not negatively impact the local, regional or statewide deer population. Please let us know if we can provide additional information or be of further assistance.

Sincerely,

Calvin W. DuBrock, Director
Bureau of Wildlife Management

cc: V. Ross, M. Schmit, L. Harshaw, D. Overcash, B. Moore, G. Alt